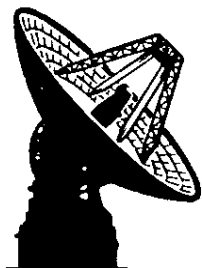




## Resource Allocation Review

**JPL**



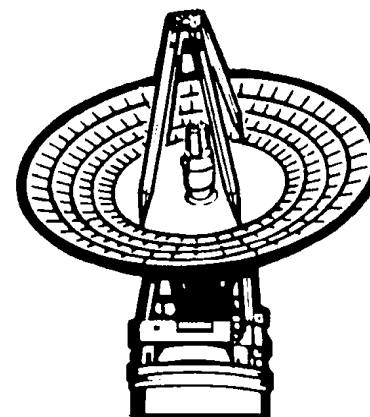
# Deep Space Network Customer Forum

**Version 2.0 Final**

**2008 - 2010**

**RAPS Team**

**February 11, 2008**





# Resource Allocation Review



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## Agenda

- ◆ Loading Study
- ◆ Periods of Contention
- ◆ Events, Recommendations, and Analyses



# Resource Allocation Review

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## Loading Study

- ◆ Assumptions
- ◆ Project Changes and Changes in DSN Resource Support Request
- ◆ New Projects
- ◆ Deleted Projects
- ◆ DSN User / Mission Planning Set
  - Ongoing / Approved Projects
  - Advanced / Planning Projects
- ◆ Major DSN Downtimes by Date
- ◆ IND Resource Implementation Planning Matrix



# Resource Allocation Review

## Assumptions

- ◆ DSS-16 is in indeterminate downtime as of February 1, 2006. As of September 29, 2008 DSS-66 is scheduled to be taken down for an indeterminate length of time. The previous designation of 26M meaning DSS-16,46,66 will now equate to DSS-46 only. As of August 01, 2009 DSS-46 is scheduled to be taken down for an indeterminate length of time.
- ◆ The following Project/User requirements were not considered during the analysis process and will be negotiated during the Mid-Range Scheduling Process:
  - ATOT – Development (4 - 8 hour supports); Mission (8 hour supports)
  - DSN - (Antenna and ZDD Calibrations)
  - GBRA - Guest Observations (4 – 8 hour supports); PRA-GAVT (all supports); Host Country 4 – 8 hour supports
  - GSSR - (GODR supports at DSS-14/15)
  - MER 1 & 2 - Uplink and Downlink MSPA passes
  - RFC - Clock Sync and CAT M&E S/X and X/Ka-band VLBI
  - Space Geodesy Programme



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

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- ◆ **Advanced Composition Explorer**
  - Changed End of Extended Mission from 10/01/2013 to 08/31/2011.
- ◆ **Cassini**
  - Clarified Extended Mission Support through June 2010.
- ◆ **Chandra X-Ray Observatory**
  - Changed End of Prime Mission from 07/24/2009 to 09/30/2014.
  - Changed End of Extended Mission from 07/24/2014 to 9/30/2019.
  - 2009 – 2014: Added Earth Eclipse, Lunar Eclipse, and Leonid supports. Extended 34B1 nominal support through Sept 30, 2014.
- ◆ **Chandrayaan - 1**
  - Changed Launch date from 03/01/2008 to 04/09/2008.
  - Changed End of Prime Mission from 03/01/2010 to 04/09/2009.
  - Changed End of Extended Mission to 04/09/2010.
- ◆ **Cluster II**
  - Changed End of Extended Mission from 09/30/2010 to 09/30/2011.



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

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### ◆ Dawn

- 2008: Added 1 (2 hour) support at 34M for Mars Thrust in weeks 01 – 44. Added 3 – 11 passes per week approximately once a month for Forced Coast support in weeks 08 – 41.
- 2009: Moved Mars Gravity Assist from late-March to Early-February at 34M in weeks 05 – 07. Added 7 passes per week in weeks 01 – 04, 08 – 30 for Mars Gravity Assist.
- 2010: Added 1 – 6 Forced Coast supports in weeks 03 – 04, 28 – 31 and 45 – 46.
- 2013: Deleted two 34H Ceres Coasting supports in weeks 37 – 52. Added Ceres Thrust supports in weeks 23 – 41. Added four 34H Forced Coast supports in week 43 and 3 supports in week 44.
- 2014: Reduced Ceres support from 6 (4 hour) passes per week to 1 (8 hour) pass per week in weeks 36 – 47.

### ◆ EPOXI (Deep Impact)

- Changed End of Prime Mission from 01/04/2009 to 11/14/2010.
- Requirements were re-planned based on a flyby of Comet 103P/Hartley 2 on October 11, 2010.

### ◆ Geotail

- Changed End of Extended Mission from 10/01/2008 to 10/01/2009.



# Resource Allocation Review Loading Study

## Project Changes Since September 2007



### ◆ GOES-O

- Launch date is NET 07/20/2008 and End of Prime Mission is 04/21/2013.

### ◆ Goldstone Solar System Radar

- 2008: Added 1 pass in week 01, and 4 passes in week 02 at DSS-14 for Asteroid 2005 WJ5. Added 1 pass in weeks 01, 08, 10, 12, 14, 16, 36, 38, 40, 42, 44, 46, 48, 50, 52 at DSS-14/15 for GODR. Added 1 pass in week 08 and 2 passes in week 09 at DSS-14 for Asteroid 2002 TD6. Added 2 passes in weeks 15 and 16 at DSS-14 for Asteroid 2005 NB7. Deleted 6 passes in week 46 and 5 passes in week 47 at DSS-14 for Asteroid 4179 Toutatis.

### ◆ International Gamma Ray Astrophysics Lab (INTG)

- Changed End of Extended Mission from 12/16/2010 to 12/31/12.
- 2008: Added 1 (12 hour) pass during Redu Maintenance at DSS-27 in weeks 02, 04, 06, 09, 11, 13, 15, 17, 19, 24, 26, 28, 30, 32, 34, 37, 39, 41, 43, 45, 47, 49, 51 and 5 (12 hour) passes in week 21.
- 2009: Added 1 (12 hour) pass during Redu Maintenance at DSS-27 in weeks 02, 04, 06, 09, 11, 13, 15, 17, 19, 24, 26, 28, 30, 32, 34, 37, 39, 41, 43, 45, 47, 49, 51 and 5 (12 hour) passes in week 21.

### ◆ James Webb Space Telescope

- End of Prime Mission changed from 07/31/2016 to 07/31/2018.



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

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### ◆ Juno

- Changed Launch date from 08/11/2011 to 08/08/2011.
- Changed End of Prime Mission from 08/11/2017 to 10/20/2018.

### ◆ Kaguya (SELENE)

- Changed End of Prime Mission from 10/25/2007 to 11/21/2008.

### ◆ Kepler

- Changed End of Prime Mission from 12/31/2012 to 09/16/2012.
- 2009: Submitted planned supports based on 2/16/09 launch. Monthly Science begins in week 16. Science Ops begins in week 17.
- 2010 - 2012: Increased Quarterly Roll/Science supports from 5 (8 hour) passes to 6 (8 hour) passes.

### ◆ Lunar Reconnaissance Orbiter

- Changed End of Prime Mission from 09/31/2010 to 11/30/2009.

### ◆ Lunar Crater Observation and Sensing Satellite

- 2008: Added 1 34H TCM support in weeks 45 – 52.
- 2009: Added 1 34H TCM support in weeks 01 – 04. Moved one 70M Impact support from week 05 to week 06. Moved 21 34HEF Impact Target supports from week 04 to week 05, and added 12 34HEF supports in week 06.





# Resource Allocation Review Loading Study

## Project Changes Since September 2007



### ◆ Mars Express Orbiter

- 2009: Changed support activity from Orbital Science to Occultation in weeks 05 – 15 and 38 – 52.
- 2010: Changed support activity from Orbital Science to Occultation in weeks 01 – 06. Added 1 (3 hour) 70M support every other week, beginning in week 01 and ending in week 51.
- 2011: Extended 7 (8 hour) supports for Orbital Science in weeks 01 – 52, and 1 (3 hour) 70M support for every other week beginning in week 01 and ending in week 52.

### ◆ Mars Odyssey 2001

- 2008: Added 7 (10 hour) passes in weeks 32 - 35.

### ◆ Mars Reconnaissance Orbiter

- 2009: Removed all MSPA activities and reset to DSA listed requirements of sixteen 34M passes and three 70M passes per week.
- 2010: Removed all MSPA activities and reset to DSA listed requirements of sixteen 34M passes and three 70M passes per week.

### ◆ New Horizons

- 2010: Added 1 (4 hour) pass in weeks 23 – 27, and 29 – 32. Added quarterly Cruise Telemetry support. Added 1 pass in weeks 27, 40, 41, 44, 45, 48, and 49. Added 1 (3 hour) pass in weeks 24, 25, 28 - 30. Added 1 (1 hour) pass in weeks 26 and 31. Added 2 (5 hour) passes in weeks 27 and 28.



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

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- ◆ **NExT (Stardust)**
  - Changed End of Prime Mission from 02/24/2011 to 02/27/2011
- ◆ **Opportunity (Mars Exploration Rover – B)**
  - 2010: Extended 70M MSPA support by adding 1 (2 hour) pass weeks 40 – 52. Extended the 34M supports by adding 7 (4.5 hour) passes in weeks 39 – 52.
  - 2011: Extended 70M MSPA supports by adding 1 (2 hour) pass and 7 (4.5 hour) passes in weeks 01 – 39.
- ◆ **Phoenix**
  - Changed End of Prime Mission from 10/26/2008 to 08/31/2008.
  - Added End of Extended Mission as 10/30/2008.
  - 2008: Increased overall support for Approach in weeks 11 – 20. Added (8 hour) 70M supports as follows: 1 pass in week 11, 3 passes in week 12 and 20, 4 passes in weeks 13 – 18. Decreased by 1 (8 hour) support at DSS-24,45,65 in week 20. Decreased by 2 (8 hour) supports at 34M in weeks 13 – 20.
- ◆ **Polar**
  - Changed End of Extended Mission 04/15/2008 to 04/30/2008.
- ◆ **Rosetta**
  - 2009: Earth Swing-by phase moved from DOY 299 – 333 (week 44 – 48) to 292 – 326 (week 43 – 47).



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

### ◆ SOHO

- Changed End of Extended Mission from 10/01/2011 to 12/31/2011.
- 2008: Removed 1 support for Keyhole Maneuver in week 22 at DSS-24. Added 1 support for Keyhole Maneuver to weeks 08 and 34 at DSS-24.
- 2009: Changed TSO dates from DOY 012 – 016 to DOY 014 – 018, remaining in week 03. Changed Keyhole Maneuver at DSS-24 from week 06, DOY 034 to DOY 041, in week 07. Added 1 support for Keyhole Maneuver at DSS-24 in weeks 07 and 33. Changed High Rate Keyhole support from DOY 047 – 052 to DOY 047 – 053, in week 08. Changed TSO support from DOY 082 – 086 to DOY 084 – 088 in week 13. Changed 1 Keyhole Maneuver support at DSS-24 from week 19 to week 20, and week 32 to week 33. Changed TSO in week 39 from DOY 264 – 268 to DOY 266 – 270, remaining in week 39. Keyhole Maneuver changed in week 45 from DOY 307 to DOY 310. Changed TSO in week 50 from DOY 341 – 346 to DOY 343 – 347.

### ◆ Space Geodesy

- 2008: Replanned the 1 (24 hour) supports at DSS-65 to be in weeks 04, 17, 22, 26, 28, 36, 48 and 51. Replanned the 1 (24 hour) supports at DSS-15 to be in weeks 09, 23, and 40. Replanned the 1 (24 hour) supports at DSS-45 to be in weeks 06, 13, 19, 32, 42 and 46.

### ◆ Spirit (Mars Exploration Rover – A)

- 2010: Extended 70M MSPA support by adding 1 (2 hour) pass weeks 40 – 52. Extended the 34M supports by adding 7 (4.5 hour) passes in weeks 39 – 52.
- 2011: Extended 70M MSPA supports by adding 1 (2 hour) pass and 7 (4.5 hour) passes in weeks 01 – 39.



# Resource Allocation Review Loading Study

## Project Changes Since September 2007

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- ◆ **Spitzer Space Telescope (SIRTF)**
  - 2011: Added 14 (2 hour) passes per week at 70M/34M for weeks 01 - 52.
- ◆ **Ulysses**
  - Proposed change for End of Extended Mission from 03/30/2008 to 09/30/2010.
  - 2008: Added Ulysses Continuation support of 14 (3 hour) passes at 34BWG in weeks 14 – 35 and weeks 45 – 53, and at 70M/34BWG in weeks 36 – 44.
  - 2009: Added Ulysses Continuation support of 14 (3 hour) passes at 34BWG in weeks 01 – 14, and at 70M in weeks 15 – 53.
  - 2010: Added Ulysses Continuation support of 14 (3 hour) passes at 70M/34BWG in weeks 01 – 14, and at 70M in weeks 15 – 39.
- ◆ **Venus Express**
  - Changed End of Extended Mission from 01/22/2009 to 05/01/2009.
- ◆ **Wind**
  - Proposed change for End of Extended Mission from 11/30/2011 to 12/31/2012.
- ◆ **Wilkinson Microwave Anisotropy Probe**
  - 2009: Moved 3 supports per week from DSS-43 to DSS-34 in weeks 01 – 13. Added 2 maneuvers 1 (5 hour), 1 (3 hour) at DSS-34 in week 05.



# Resource Allocation Review

## Loading Study

### New Projects Since September 2007

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Project	Acronym	Launch or Start	EOPM	EOEM
Mars Scout 2013	M13S	11/28/13	08/21/16	TBD
Gravity Recovery and Interior Laboratory-A (GRAIL-A)	TBD	09/09/11	05/27/12	TBD
Gravity Recovery and Interior Laboratory-B (GRAIL-B)	TBD	09/09/11	05/27/12	TBD



# Resource Allocation Review Loading Study



**Removed/Unsupported Projects Since September 2007**

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Project	Acronym	Launch or Start	EOPM	EOEM
Mars Scout 2011	M11O	10/31/11	09/10/14	TBS
Mars 2013 Orbiter	M13O	11/28/13	08/21/16	TBS



# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
DSN ZDD Calibration	DSN	--	--	--
Reference Frame Calibration (Cat M&E and Clock Sync)	DSN	10/01/01	09/30/20	12/31/30
Voyager 2	VGR2	08/20/77	10/15/89	12/31/13
Voyager 1	VGR1	09/05/77	12/31/80	12/31/13
Goldstone Solar System Radar	GSSR	10/01/88	09/30/20	12/31/30
European and Global VLBI Systems	EGS	10/01/88	09/30/20	12/31/30
Ulysses	ULYS	10/06/90	09/11/95	09/30/10
Geotail	GTL	07/24/92	07/24/95	09/30/09
Space Geodesy Programme	SGP	05/01/93	09/30/20	12/31/30
Wind	WIND	11/01/94	11/01/97	12/31/12
Ground Based Radio Astronomy	GBRA	10/01/95	09/30/20	12/31/30
SOHO	SOHO	12/02/95	05/02/98	12/31/11
Polar	POLR	02/22/96	08/23/97	04/30/08
Advanced Composition Explorer	ACE	08/25/97	02/01/01	08/31/11
Advanced Tracking and Observational Techniques (ATOT)	ATOT	10/01/97	09/30/20	12/31/30



# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Cassini	CAS	10/15/97	06/30/08	06/30/10
Chandra X-Ray Observatory	CHDR	07/23/99	09/30/14	09/30/19
Cluster 2 - S/C #2 (Samba)	CLU2	07/16/00	02/15/03	09/30/11
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/30/11
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/30/11
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/30/11
Mars Odyssey 2001	M01O	04/07/01	08/24/04	12/31/10
Wilkinson Microwave Anisotropy Probe	WMAP	06/30/01	10/01/03	09/30/10
International Gamma Ray Astrophysics Lab	INTG	10/17/02	12/18/04	12/31/12
Hayabusa (MUSES - C)	MUSC	05/09/03	06/10/10	- - -
Mars Express Orbiter	MEX	06/02/03	02/11/06	05/01/09
Spirit (Mars Exploration Rover - A)	MER2	06/10/03	04/06/04	09/30/08
Opportunity (Mars Exploration Rover - B)	MER1	07/07/03	04/27/04	09/30/08
Spitzer Space Telescope (SIRTF)	STF	08/25/03	05/31/09	05/31/14
Rosetta	ROSE	02/26/04	12/31/15	- - -
Messenger	MSGR	08/03/04	03/19/12	- - -
Mars Reconnaissance Orbiter	MRO	08/12/05	12/31/10	12/31/15

02/11/2008

Final

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# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Ongoing / Approved Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Venus Express	VEX	11/09/05	09/24/07	05/01/09
New Horizons	NHPC	01/19/06	04/17/16	TBD
Stereo Ahead	STA	10/26/06	01/22/09	01/22/12
Stereo Behind	STB	10/26/06	01/22/09	01/22/12
EPOXI (Deep Impact)	DIF	07/03/07	11/14/10	---
NExT (Stardust)	SDU	07/03/07	02/27/11	---
Phoenix	PHX	08/04/07	08/31/08	10/30/08
Kaguya (SELENE)	SELE	09/14/07	11/21/08	TBD
Dawn	DAWN	09/27/07	07/04/15	TBD
Chandrayaan - 1	CH1	04/09/08	04/09/09	04/09/10
GOES-O	GO14	07/20/08	04/21/13	TBD
Lunar Reconnaissance Orbiter	LRO	10/28/08	11/30/09	TBD
Lunar Crater Observation and Sensing Satellite (LCROSS)	LCRO	10/28/08	02/05/09	---
Kepler	KEPL	02/16/09	09/16/12	TBD
Mars Science Laboratory 2009	MSL	09/15/09	03/04/12	TBD



# Resource Allocation Review Loading Study DSN User / Mission Planning Set

## – Advanced / Planning Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
Juno	JUNO	08/08/11	10/20/18	TBD
Gravity Recovery and Interior Laboratory-A (GRAIL-A)	TBD	09/09/11	05/27/12	TBD
Gravity Recovery and Interior Laboratory-B (GRAIL-B)	TBD	09/09/11	05/27/12	TBD
Discovery-13	TBD	01/01/13	TBD	TBD
James Webb Space Telescope	JWST	06/15/13	02/28/19	TBD
Mars Scout 2013 (TBS)	M13S	10/31/13	12/30/16	TBD
Magnetospheric Multiscale	MMS	10/01/14	12/31/17	TBD
Discovery-14	TBD	01/01/15	TBD	TBD
New Frontiers-3	TBD	01/01/15	TBD	TBD
Outer Planet-1	TBD	01/01/15	TBD	TBD
Beyond Einstein-1	TBD	01/01/16	TBD	TBD
Discovery-15	TBD	01/01/17	TBD	TBD
Solar Sentinels/Inner Heliospheric	TBD	04/01/17	TBD	TBD



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

– 2008 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 54	X/X-Ka Band Install	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	AZ Track Refurbishment - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	AZ Data Gear Replacement - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	Q-Band Installation - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 54	Depot Level Maintenance - NIB	02/04/2008	05/11/2008	98	06 - 19	035	132
DSS 15	Life Extension	02/18/2008	05/11/2008	84	08 - 19	049	132
DSS 15	Depot Level Maintenance - NIB	02/18/2008	05/11/2008	84	08 - 19	049	132
SPC 60	Commercial Power Installation	03/30/2008 04:00	03/30/2008 16:00	1	13 - 13	090	090
SPC 60	Commercial Power Installation	03/31/2008 04:00	03/31/2008 16:00	1	14 - 13	091	091
SPC 60	Commercial Power Installation	04/06/2008 04:00	04/06/2008 16:00	1	14 - 14	097	097
SPC 60	Commercial Power Installation	04/07/2008 04:00	04/07/2008 16:00	1	15 - 14	098	098
SPC 60	Commercial Power Installation	04/14/2008 04:00	04/14/2008 16:00	1	16 - 15	105	105
SPC 10	CB 22 Electrical Maintenance	04/17/2008 07:55	04/17/2008 21:55	1	16 - 16	108	108



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

– 2008 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 34	AZ Track Repair	06/17/2008	07/13/2008	27	25 - 28	169	195
DSS 34	Acq Aid Installation - NIB	06/30/2008	07/13/2008	14	27 - 28	182	195
DSS 34	Ka-Band Phase 2 Install	07/14/2008	09/29/2008	77	29 - 39	196	272
DSS 34	Depot Level Maintenance - NIB	07/14/2008	09/29/2008	77	29 - 39	196	272
DSS 14	Grouting	08/25/2008	08/27/2008	3	35 - 35	238	240
DSS 55	Paint Repair - <b>Proposed</b>	09/01/2008	10/12/2008	42	36 - 41	245	286
DSS 55	Depot Level Maintenance - NIB - <b>Proposed</b>	09/01/2008	10/12/2008	42	36 - 41	245	286
SPC 10	G86/G81 Electrical Maintenance - <b>Proposed</b>	NET 09/01/2008 08:30	---	1	---	---	---
SPC 10	G91 Electrical Maintenance - <b>Proposed</b>	09/15/2008 08:30	09/15/2008 12:30	1	38 - 37	259	259
DSS 43	Life Extension	09/29/2008	03/29/2009	182	40 - 13	273	088
DSS 43	Depot Level Maintenance – NIB	09/29/2008	03/29/2009	182	40 - 13	273	088
DSS 66	Extended Downtime	09/29/2008 16:00	12/31/2019	4111	40 - 53	273	365
SPC 10	Echo Tie Line Electrical Maintenance - <b>Proposed</b>	10/01/2008 08:30	10/01/2008 12:30	1	40 - 40	275	275



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

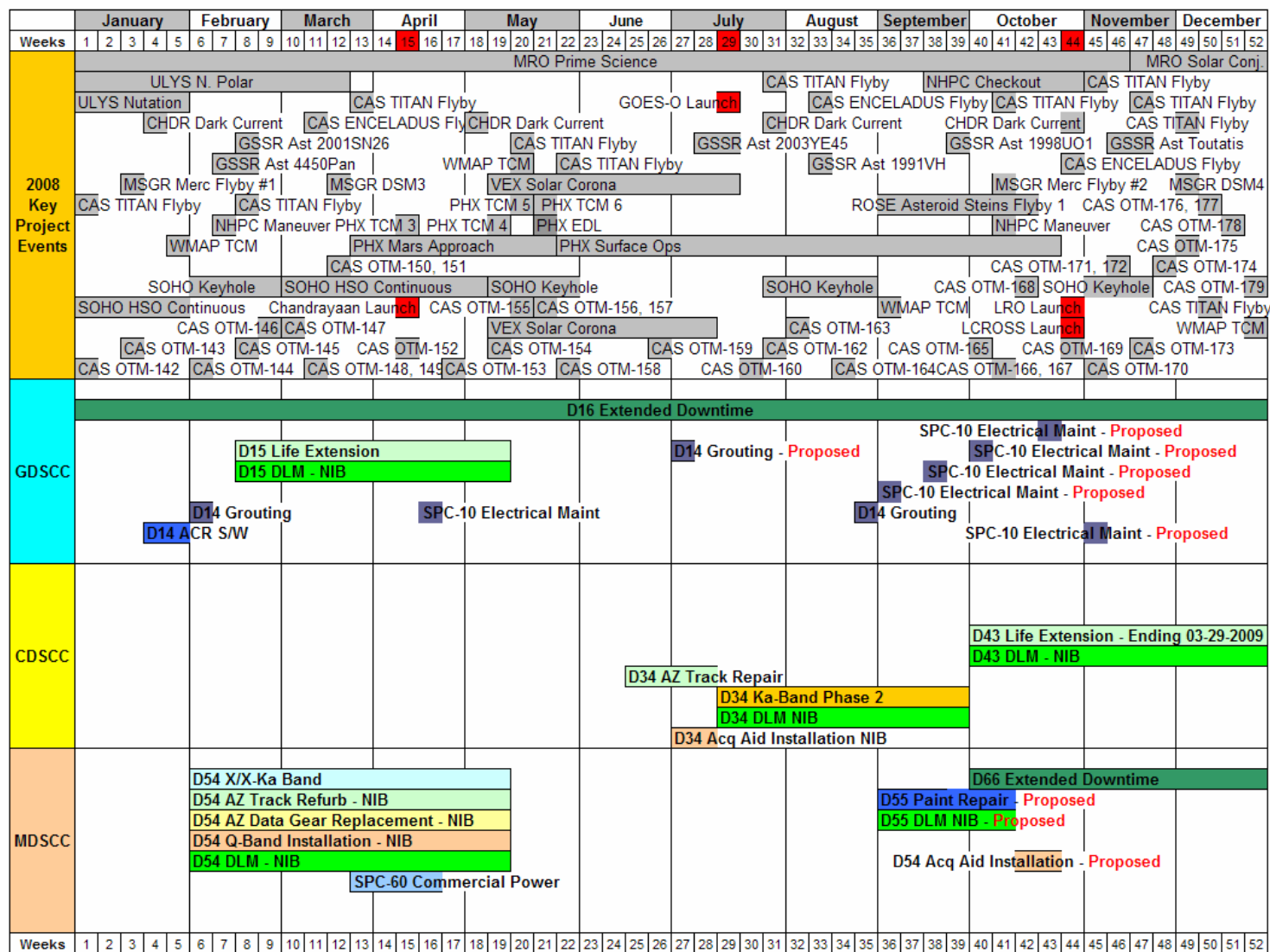
– 2008 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 54	Acq Aid Installation - <b>Proposed</b>	10/13/2008	10/26/2008	14	42 - 43	287	300
SPC 10	Apollo Tie-Line Electrical Maintenance - <b>Proposed</b>	10/20/2008 08:30	10/20/2008 12:30	1	43 - 42	294	294
SPC 10	SPC-10 Electrical Maintenance - <b>Proposed</b>	11/03/2008 08:30	11/03/2008 12:30	1	45 - 44	308	308



## DSN Major Downtimes by Date

– 2008 –



Revised: February 7, 2008



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

– 2009 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 63	Life Extension	03/30/2009	09/27/2009	182	14 - 39	089	270
DSS 24	Ka-Band Phase 2 Install	07/06/2009	09/21/2009	77	28 - 38	187	263
DSS 24	Depot Level Maintenance - NIB	07/06/2009	09/21/2009	77	28 - 38	187	263
DSS 46	Extended Downtime	08/03/2009	12/31/2019	3803	32 - 53	215	365
DSS 65	Life Extension Elevation	09/28/2009	11/30/2009	63	40 - 48	271	333
DSS 14	Life Extension	10/04/2009	03/28/2010	176	40 - 12	277	087
DSS 14	Depot Level Maintenance - NIB	10/04/2009	03/28/2010	176	40 - 12	277	087



## DSN Major Downtimes by Date

Revised: February 8, 2008

02/11/2008

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# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

– 2010 –

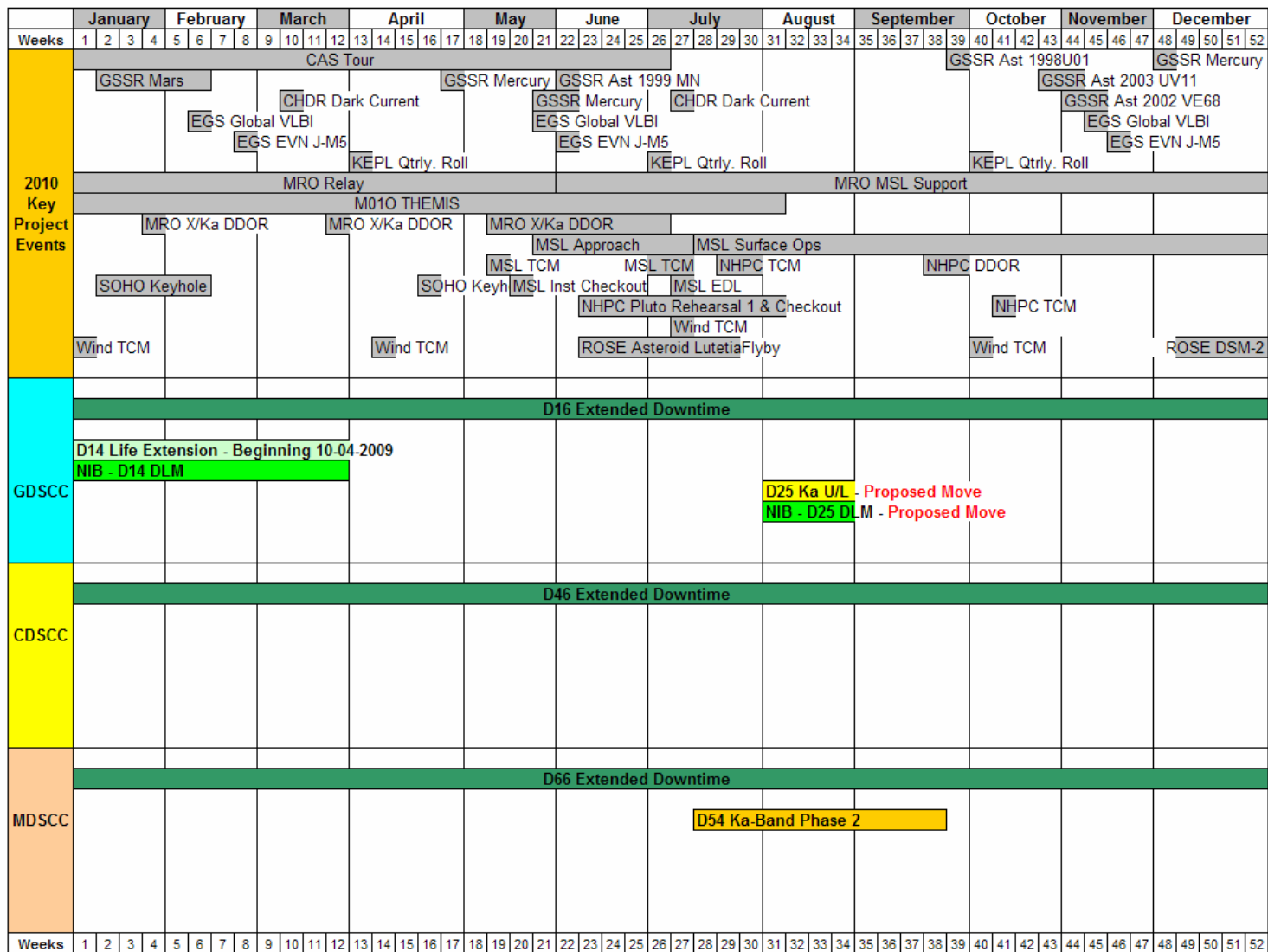
Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
DSS 54	Ka-Band Phase 2 Install	07/12/2010	09/27/2010	77	28 - 38	193	269
DSS 25	Depot Level Maintenance - NIB <b>Proposed</b>	08/02/2010	08/29/2010	28	31 - 34	214	241
DSS 25	Ka-Band Uplink Install - <b>Proposed</b>	08/02/2010	08/29/2010	28	31 - 34	214	241



# Resource Allocation Review

## Loading Study

### DSN Major Downtimes by Date



Revised: February 7, 2008

– 2010 –



# Resource Allocation Review Loading Study

## DSN Major Downtimes by Date

– 2011 –

Site	Description	Start	End	Duration (days)	Week(s)	Start DOY	End DOY
	None						



# Resource Allocation Review

## Loading Study

### DSN Major Downtimes by Date

	January				February				March				April				May				June				July				August				September				October				November				December																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Revised: February 6, 2008



# Resource Allocation Review Loading Study

## IND Resource Implementation Planning Matrix

DSN Resource Implementation Planning Matrix by Subnet

Complex	Station	Subnet	S-Band		X-Band		Ka-Band		Ka Phase 2
			Down	Up	Down	Up	Down	Up	
10	DSS-16	26M	✓	N/A	N/A	N/A	N/A	N/A	N/A
40	DSS-46	26M	✓	✓	N/A	N/A	N/A	N/A	N/A
60	DSS-66	26M	✓	✓	N/A	N/A	N/A	N/A	N/A
10	DSS-27	34HSB	✓	✓	N/A	N/A	N/A	N/A	N/A
10	DSS-24	34B1	✓	✓	✓	✓	N/A	N/A	09/21/09
40	DSS-34	34B1	✓	✓	✓	✓	✓	N/A	09/29/08
60	DSS-54	34B1	✓	✓	✓	✓	04/15/08	N/A	09/27/10
10	DSS-25	34B2	N/A	N/A	✓	✓	✓	08/01/10	N/A
10	DSS-26	34B2	N/A	N/A	✓	✓	✓	N/A	N/A
60	DSS-55	34B2	N/A	N/A	✓	✓	✓	N/A	N/A
10	DSS-15	34HEF	✓	N/A	✓	✓	N/A	N/A	N/A
40	DSS-45	34HEF	✓	TBD	✓	✓	N/A	N/A	N/A
60	DSS-65	34HEF	✓	TBD	✓	✓	N/A	N/A	N/A
10	DSS-14	70M	✓	✓	✓	✓	N/A	N/A	N/A
40	DSS-43	70M	✓	✓	✓	✓	N/A	N/A	N/A
60	DSS-63	70M	✓	✓	✓	✓	N/A	N/A	N/A

N/A = Capability Not Planned    xx/xx/xx = Capability Date Recently Changed    As of: 02/07/08  
 ✓ ✓ ✓ = Capability Recently Exists    ✓ = Capability Exists



# Resource Allocation Review

## Periods of Contention

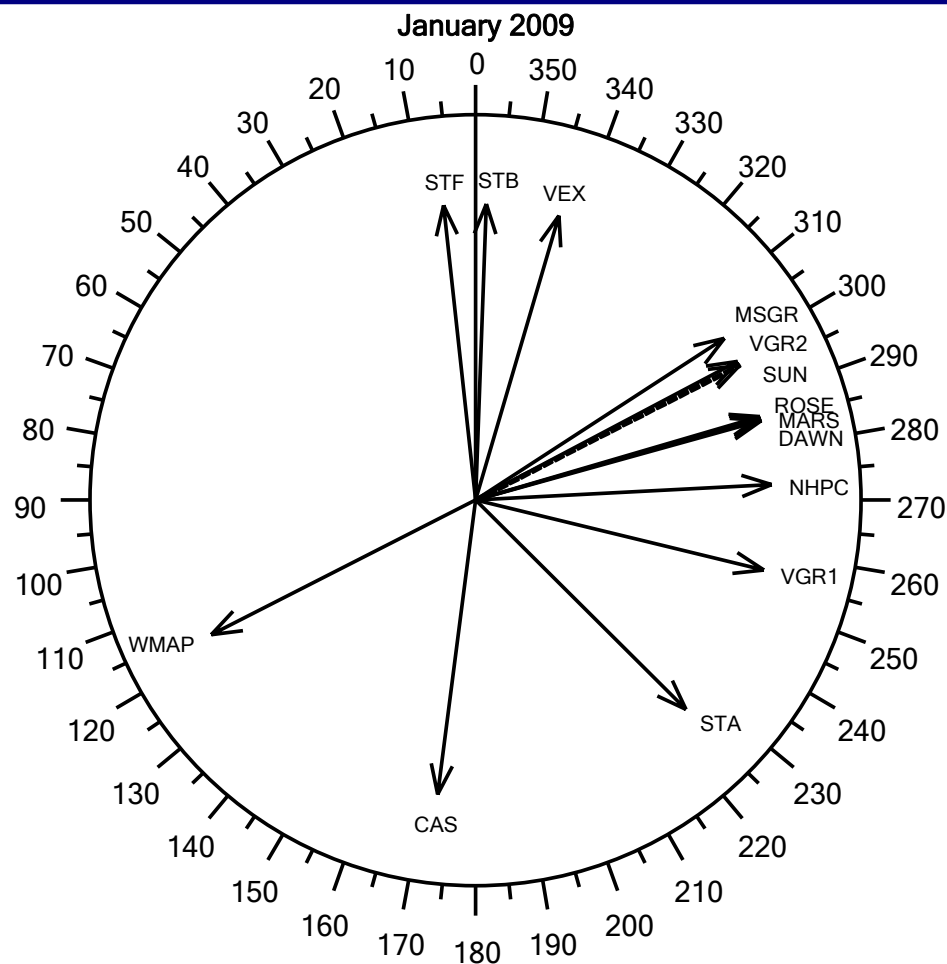
<i>Legend</i>	
<b>05 – 08</b>	Indicates months that DO contain contentions to be resolved
<b>18 – 22</b>	Indicates months that DO NOT contain contentions to be resolved
<i>01 – 04</i>	Indicates months without contention

Month	Weeks		
	2008	2009	2010
January		01 – 05	01 – 04
February		06 – 09	<b>05 – 08</b>
March		10 – 13	<b>09 – 12</b>
April		14 – 18	<b>13 – 17</b>
May		<b>19 – 22</b>	18 – 21
June		23 – 26	22 – 25
July		27 – 31	26 – 30
August		32 – 35	<b>31 – 34</b>
September		36 – 39	<b>35 – 39</b>
October	40 – 44	40 – 44	<b>40 – 43</b>
November	<b>45 – 48</b>	45 – 48	<b>44 – 47</b>
December	<i>49 – 52</i>	49 – 53	<b>48 – 52</b>



**JPL**

# Resource Allocation Review Spacecraft Right Ascension January 2009



THE SPACECRAFT RIGHT ASCENSION FIGURES SHOW THE POSITIONS OF THE SPACECRAFT IN THE SKY RELATIVE TO EACH OTHER ON THE 15TH OF EACH MONTH FOR THE YEAR INDICATED. RIGHT ASCENSION IS COMMONLY MEASURED IN HOURS, WITH 1 HOUR = 15 DEGREES.

THE ARROW INDICATES THE CENTER OF A SPACECRAFT VIEW FROM EARTH. EXTEND 60 DEGREES ON BOTH SIDES OF THE ARROW TO CALCULATE AN EIGHT (8) HOUR VIEW PERIOD.



# Resource Allocation Review Events, Recommendations and Analyses



- ◆ The Resource Allocation Review Redbook makes reference to monthly contention as low, moderate, severe, and extreme. The explanation of these terms is listed below.

Projected unsupportable time is expressed as low, moderate, severe, or extreme in the Analysis sections of this document. Projected unsupportable time is an estimate of the amount of requested time, typically in percentage of requirements or modified requirements, that is unsupportable, based on resource availability, other users' requirements, assumed priorities, and view periods. The following percentages apply:

Low/Workable	= <20%
Moderate	= 20% to 30%
Severe	= 31% to 45%
Extreme	= >45%

Workable is a term used to express a condition wherein the projected unsupportable time is low. This condition occurs when the general forecasting analysis indicates a low percentage of unsupportable time or when agreements have been made to reduce contention to a workable level. Workable essentially means that experience has shown that the remaining contention may be solved during final schedule preparations and negotiations.

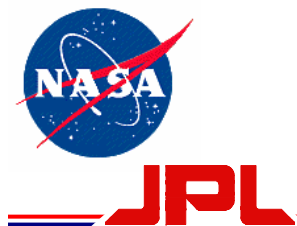




# **Resource Allocation Review Events, Recommendations and Analyses**



## **2008 Events, Recommendations and Analyses**

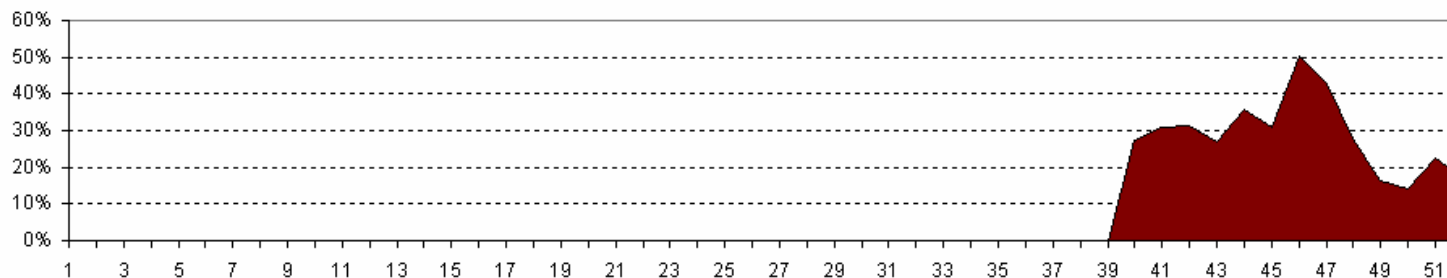


# Resource Allocation Review

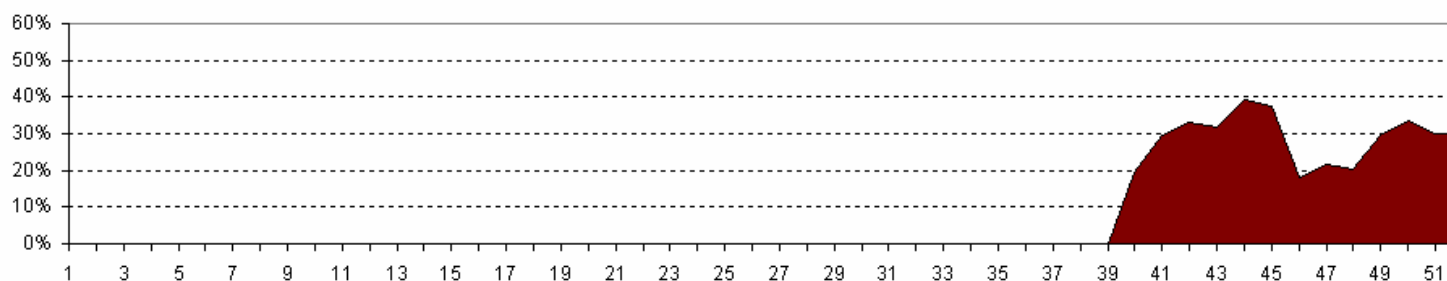
## Events, Recommendations and Analyses

### 2008 Weekly Average User Unsupportable Time

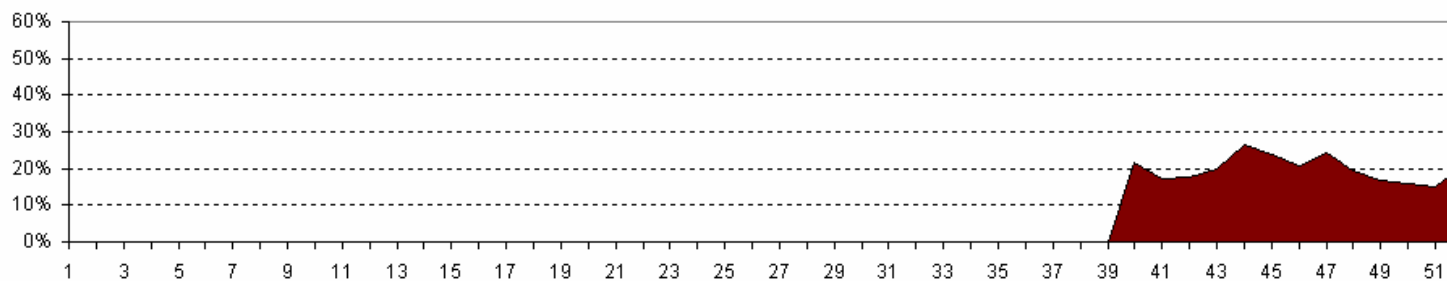
70M

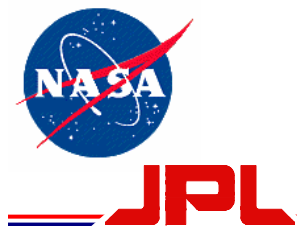


34HEF



34BWG1



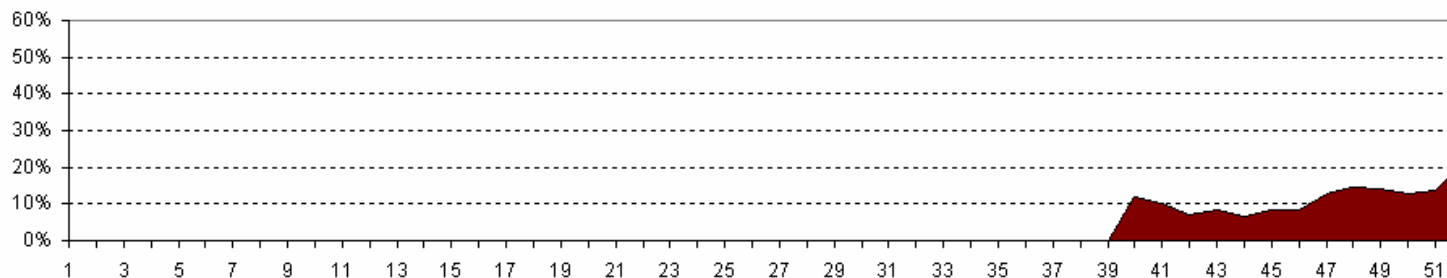


# Resource Allocation Review

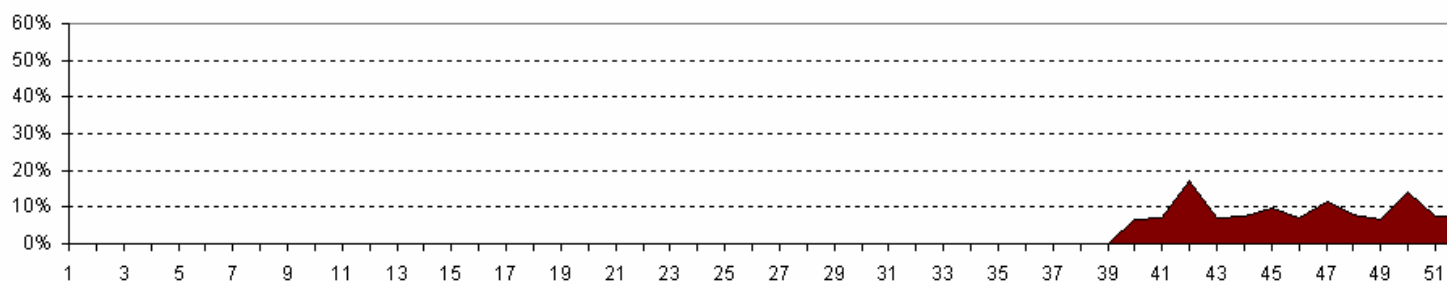
## Events, Recommendations and Analyses

### 2008 Weekly Average User Unsupportable Time

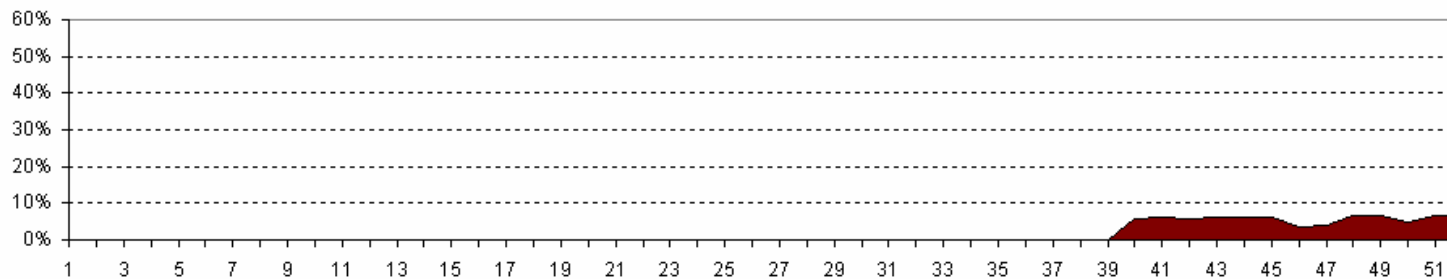
34BWG2



34HSB



26M





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – October (Weeks 40 - 44)

#### EVENTS

DSS-43 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension) beginning in week 40

DSS-54 proposed downtime for Acquisition Aid Installation in weeks 42 and 43

DSS-55 proposed downtime for Paint Repair & Depot Level Maintenance in weeks 36 – 41

DSS-66 approved downtime (Extended Downtime) beginning in week 40

Cassini Tour

Chandra ACA D/C Measurement in week 41

Dawn Mars Thrust ends in week 44; Forced Coasting in week 41; Delta DOR in weeks 41, 43 and 44; Optimal Mars Gravity Assist in week 44

EGS Calibration in week 42; EVN J-M5 in week 43; Global VLBI in week 44

EPOXI Delta DOR in week 44

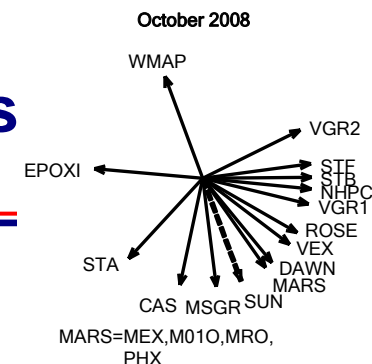
GBRA Guest Observation; Host Country: PRA-GAVRT

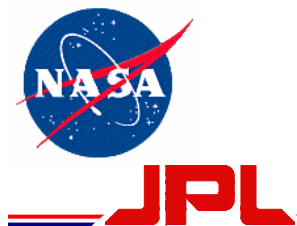
GSSR Asteroid 2005 GN59 in week 42; GODR in weeks 40, 42 and 44

INTEGRAL Redu Maintenance in weeks 41 and 43

LCROSS Launch and Transfer Cruise in week 44

Lunar Reconnaissance Orbiter Launch and Early Orbit Phase week 44





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – October (Weeks 40 - 44) (Continued)

#### EVENTS

##### Mars Odyssey Relay

Mars Express Orbital Occultation; Bi-Static Radar in weeks 40, 42 and 44;  
R/S Solar Corona begins in week 42

Mars Reconnaissance Orbiter Ka Ops Demo; Prime Science; X/Ka Delta DOR in week 41;  
Delta DOR in weeks 41 and 42

Messenger Mercury Flyby #2 in weeks 41 and 42; TCM in weeks 41 and 44

New Horizons Checkout, Delta DOR in week 44; L MET CCD CMD in weeks 40 and 41

NExT Cruise 1b in week 42

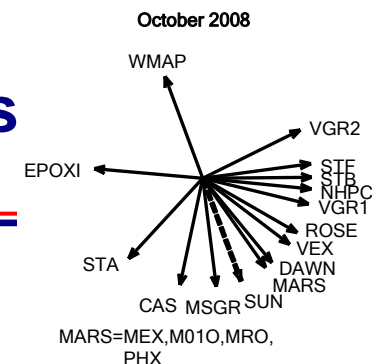
RFC CAT X/Ka in week 40; S/X in weeks 41 and 42; Clock Sync in weeks 41 and 42

SGP Crustal Dynamics B-M4 in week 42; W-M4 in week 43; H-M4 in week 44

SOHO TSO in week 42

Stereo Ahead HGA CAL in week 40

Stereo Behind HGA CAL in week 40





# Resource Allocation Review

## Events, Recommendations and Analyses

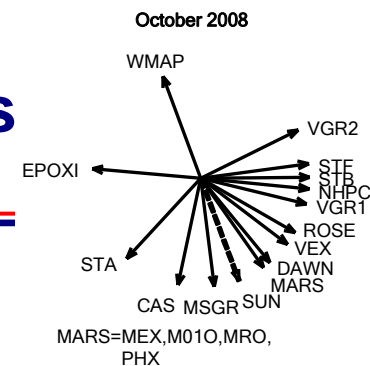
### 2008 – October (Weeks 40 - 44) (Continued)

#### EVENTS

Voyager 1 A069 U/L BU, D/L CONF BU, SEQ A069 U/L and SEQ D/L CONF in week 40; DTR Array in week 43; ASCAL in week 44; MAGROL on DOY 305

Voyager 2 BLF in week 44; MAGROL on DOY 296

WMAP Maneuver in week 41





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – October (Weeks 40 - 44) (Continued)

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#### RECOMMENDATIONS

Approve proposed DSS-54 downtime for Acquisition Aid Installation in weeks 42 – 43.

Approve proposed DSS-55 downtime for Paint Repair and Depot Level Maintenance ending in week 41.

☺ SOHO move passes at DSS-27,45,65 to DSS-27,46 and move 9.6 hour passes at DSS-27,45,65 to DSS-27,46 and reduce to 8 hour. (1,2)

VGR1 Routine D/L move passes at DSS-14 to DSS-24 in weeks 40 – 42. (1,3)



# **Resource Allocation Review**

## **Events, Recommendations and Analyses**

### **2008 – October (Weeks 40 - 44) (Continued)**

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#### **ANALYSES**

- 1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, GSSR Asteroid 2005 GN59, M01O, MEX, MRO, MSGR, NHPC, SOHO, STF, VGR1 and WMAP. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-43 Downtime.**
- 2. (34HEF) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, MSGR, SOHO and VGR1. Contention is heavy at all antennas, but more so at DSS-45 from offloading of DSS-43. Elevated requirements for special activities such as LRO and SOHO including TSO contribute to the high contention.**
- 3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, LRO, M01O, MRO and WIND. Contention is heavy at all antennas, but more so at DSS-34 from offloading of DSS-43. Elevated requirements for special activities such as LRO, MRO Prime Science and M01O Relay contribute to the high contention.**

**Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations**





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48)

#### **EVENTS**

DSS-43 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Leonid Pass in weeks 46 and 47

Dawn Optimal Mars Gravity Assist and Delta DOR

EPOXI TCM and Delta DOR

EGS EVN J-M5 in week 45

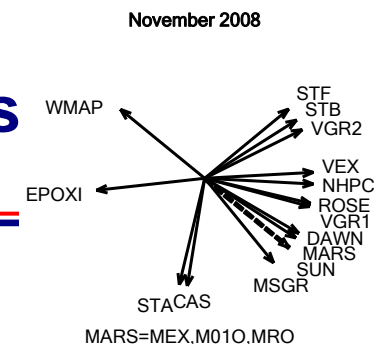
GBRA Guest Observation; Host Country; PR-GAVRT

GSSR Astrometry 4179 Toutatis in weeks 46 and 47; GODR in weeks 46 and 48

LCROSS Orbit Cruise and Transfer Cruise begins in week 45

Mars Odyssey Relay

Mars Express Orbital Occultation/M01O Relay; R/S Solar Corona; Bi-Static Radar in  
weeks 46 and 48

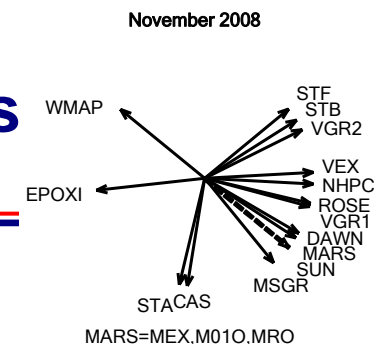




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48) (Continued)



**Mars Reconnaissance Orbiter Ka Ops Demo ends in week 46; Prime Science/M01O Relay ends in week 47; Solar Conjunction begins in week 47, X/Ka-Delta DOR in week 45**

**New Horizons Checkout ends in week 47; Delta DOR in week 45; Cruise/Telemetry in week 46**

**NExT Cruise 1b in week 46; EGA-1 OD begins in week 47**

**RFC CAT X/Ka in weeks 45 and 46; S/X in weeks 47 and 48; Clock Sync in weeks 45 and 47**

**SGP Crustal Dynamics W-M4 in week 46; B-M4 in week 47; H-M4 in week 48**

**SOHO Keyhole in weeks 45 – 47; Keyhole Maneuver in week 46**

**Voyager 2 B141 U/L BU, D/L BU, SEQ B142 U/L and D/L in week 45**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48) (Continued)

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#### RECOMMENDATIONS

- ☺ MEX R/S Solar Corona delete 4 of 7 passes from 70M, and MSPA whenever possible.  
(1)
- ☺ SOHO reduce 9.6-hour passes to 8-hours in week 48 (2)



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – November (Weeks 45 - 48) (Continued)

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#### ANALYSES

1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, GSSR Asteroid 4170 Toutatis, M01O, MEX, MRO, NHPC, SOHO Keyhole and STF. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-43 Downtime. Currently all possible MSPA's have been scheduled.
2. (34HEF) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, LCRO, M01O, MEX, MRO MSGR, NHPC, SOHO Keyhole and VGR1. Contention is heavy at all antennas, but more so at DSS-45 from offloading of DSS-43. Elevated requirements for special activities such as LRO and SOHO including Keyhole contribute to the high contention.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, Cassini, DSS Maintenance, M01O, MRO, MSGR, SOHO Keyhole and STA. Contention is heavy at all antennas, but more so at DSS-34 from offloading of DSS-43. Elevated requirements for special activities such as MRO Prime Science and M01O Relay contribute to the high contention.

Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – December (Weeks 49 - 52)

#### **EVENTS**

DSS-43 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Earth Eclipse in weeks 50 – 52

Dawn Mars Thrust and Delta DOR

EPOXI Delta DOR in weeks 51 and 52; TCM ends in week 51, Earth Flyby begins in week 52

GBRA Host Country; PRA-GAVRT

GSSR GODR in weeks 50 and 52

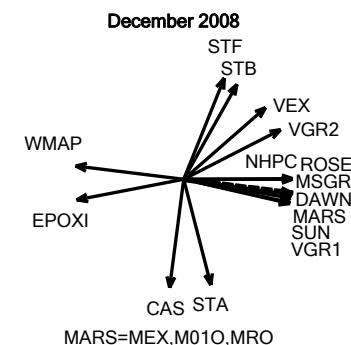
Hayabusa Orbit Determination in week 51

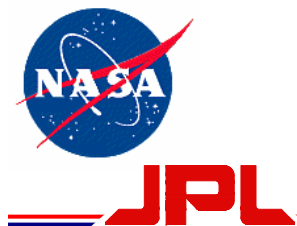
INTEGRAL Redu Maintenance in weeks 49 and 51

LCROSS Orbit Cruise and TCM

Mars Odyssey Relay

Mars Express Orbital Occultation; R/S Solar Corona; Bi-Static Radar in weeks 50 and 52





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – December (Weeks 49 - 52) (Continued)

#### EVENTS

Mars Reconnaissance Orbiter Relay and Science in week 52, Solar Conjunction ending in week 51, X/Ka-Delta DOR in week 52

Messenger DSM-4 in week 49

New Horizons Cruise/Telemetry in week 49; Maneuver in weeks 50 and 51; Solar Conjunction in weeks 51 and 52, Delta DOR

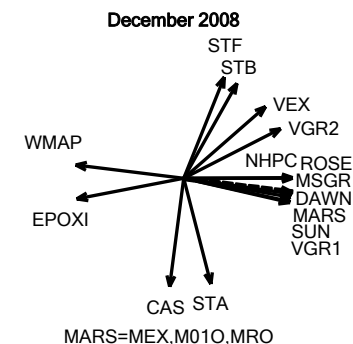
NExT EGA-1 OD in weeks 49 and 50; EGA TCM-1 in weeks 50 and 51; EGA OD in weeks 51 and 52

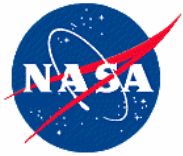
RFC CAT X/Ka in weeks 51 and 52; Clock Sync in weeks 49 and 51

SGP Crustal Dynamics H-M4 in week 50; B-M4 and W-M4 in week 51

SOHO TSO in week 50

Wind TCM in week 50





# Resource Allocation Review

## Events, Recommendations and Analyses

2008 – December (Weeks 49 - 52) (Continued)

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### RECOMMENDATIONS

None



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2008 – December (Weeks 49 - 52) (Continued)

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#### ANALYSES

Contention levels on the 70M, 34HEF, 34BWG1, 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.





# **Resource Allocation Review Events, Recommendations and Analyses**



## **2009 Events, Recommendations and Analyses**

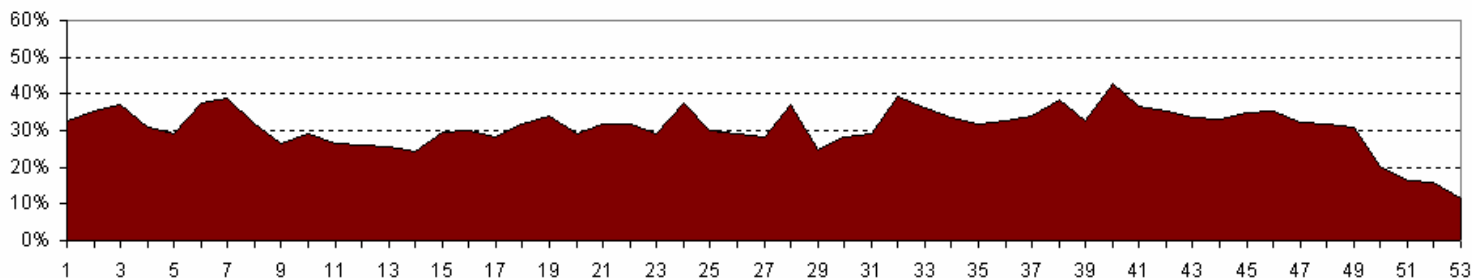


# Resource Allocation Review

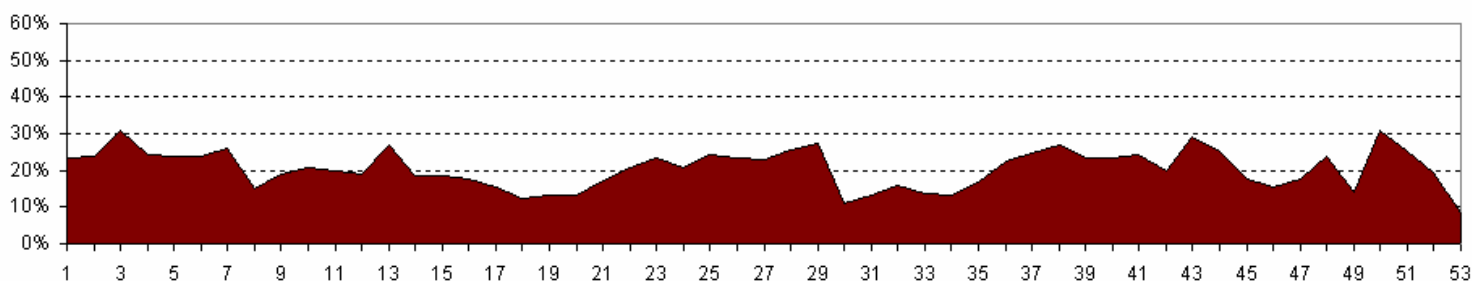
## Events, Recommendations and Analyses

### 2009 Weekly Average User Unsupportable Time

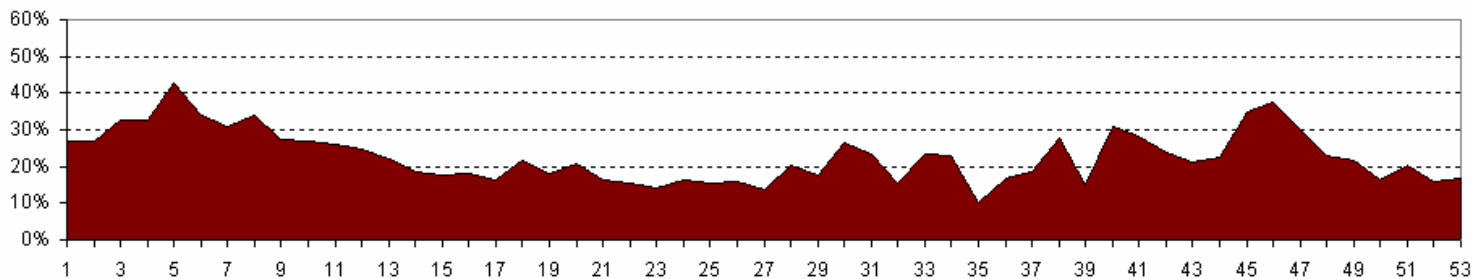
70M

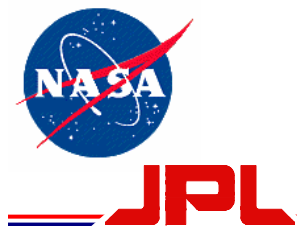


34HEF



34BWG1



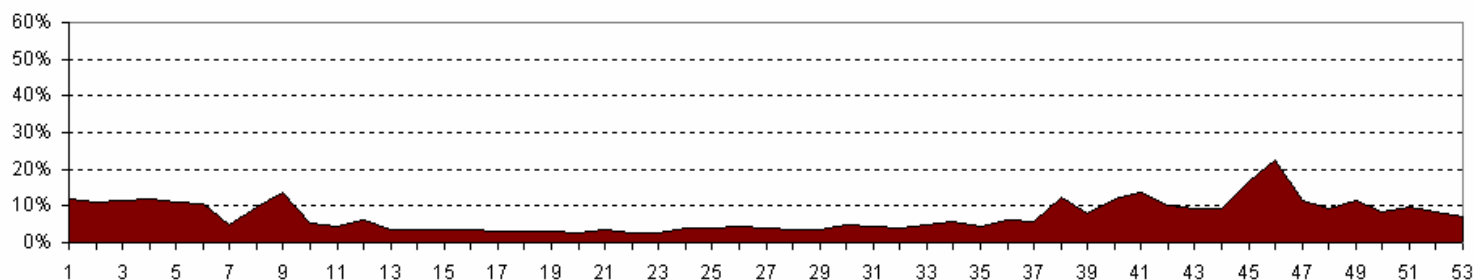


# Resource Allocation Review

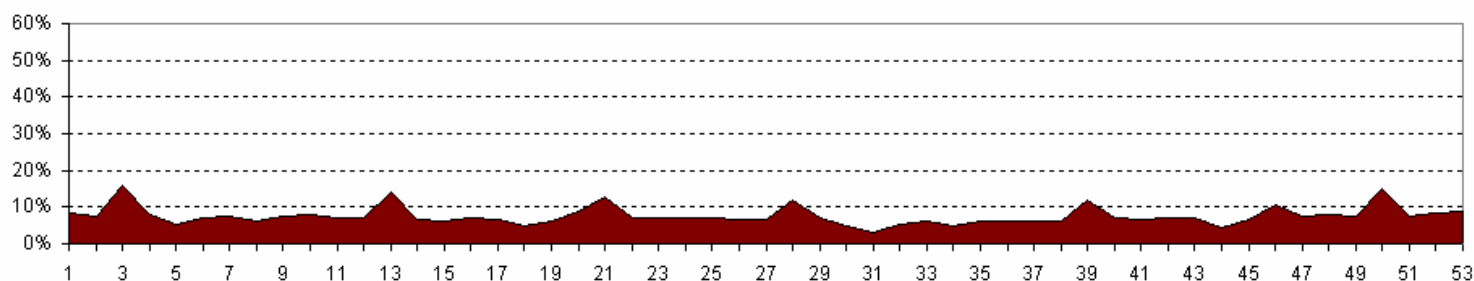
## Events, Recommendations and Analyses

### 2009 Weekly Average User Unsupportable Time

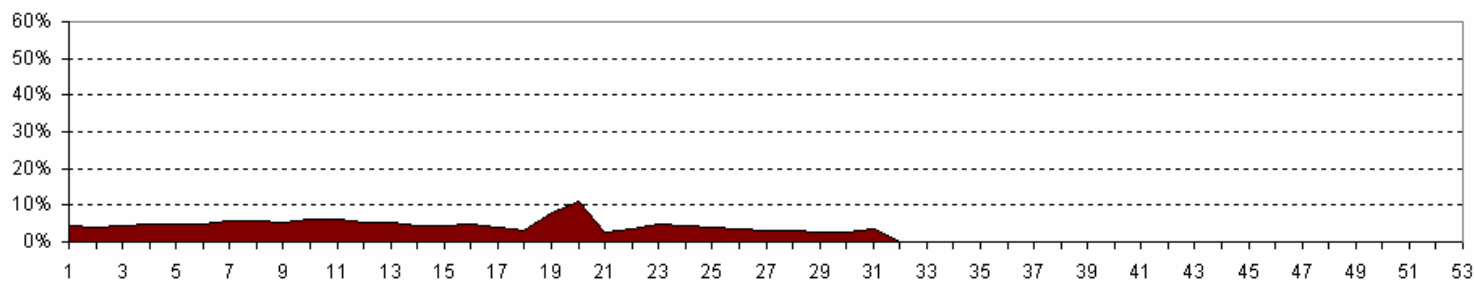
34BWG2



34HSB



26M





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – January (Weeks 01 - 05)

#### **EVENTS**

DSS-43 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra ACA D/C Measurement in week 03

Dawn Delta DOR; Mars Optimal Gravity Assist begins in week 5 and Optimal MGA in  
weeks 01 – 04

EPOXI Prime Shift, Earth Flyby in weeks 01 and 02; TCM begins in week 03, Delta DOR in  
weeks 04 and 05

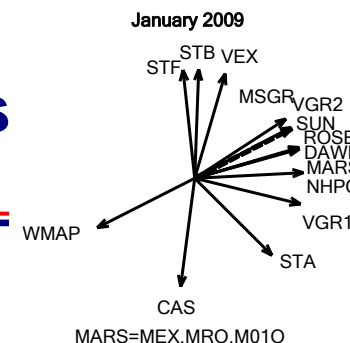
GBRA Guest Observation; PRA-GAVRT; Host Country in weeks 02, 04, and 05

GSSR Asteroid 1998 CS1 in weeks 03 and 04; GODR in weeks 01, 03 and 05; Mercury GBT  
in week 03

INTEGRAL Redu Maintenance in weeks 02 and 04

LCROSS Orbit Cruise in weeks 01 – 03; TCM in weeks 01 – 04; Impact Target begins in  
week 05

Mars Express Occultation begins in week 05; Bi-Static Radar in weeks 02 and 04





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – January (Weeks 01 - 05) (continued)

#### EVENTS

Mars Reconnaissance Orbiter Relay and Science

Messenger TCM in week 03

New Horizons Beacon, Cruise Telemetry in week 03

NExT EGA OD in week 01; EGA NAV in week 02; TCM 2 in week 02; EGA in week 03; EGA Post NAV begins in week 04

RFC Cat S/X in weeks 01 and 02, X/Ka in weeks 03 and 04, Clock Sync week 01, 03, and 05

SGP Crustal Dynamics H-M4 in weeks 02 and 04; B-M4 in week 03; W-M4 in weeks 03 and 04

SOHO TSO in week 03; Keyhole begins in week 05

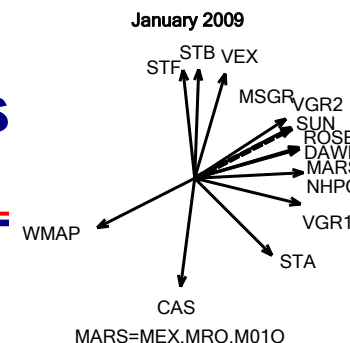
Stereo Ahead HGA CAL in week 02; Prime Science in weeks 01 – 04

Stereo Behind HGA CAL in week 02; Prime Science in weeks 01 – 04

Voyager 1 A070 U/L and D/L CONF BU, SEQ A070 U/L and D/L CONF in week 02

Voyager 2 BLF D/L and U/L in week 05

WMAP Maneuver in week 05





# Resource Allocation Review Events, Recommendations and Analyses



2009 – January (Weeks 01 - 05) (continued)

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## RECOMMENDATIONS

DSS Maintenance Delete 1 of 2 supports at DSS-63 in week 05. (1)

☺ LCRO move from 34H to DSS-34,45 support in week 05. (2,3)

☺ M01O and MRO MSPA six 70M passes at DSS-14,63. M01O Accommodate 4 GSSR Asteroid passes at DSS-14 in week 03. (1,2,3)

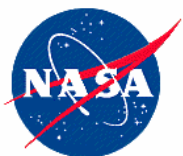
MRO reduce 34M requirements by approximately 6 passes to accommodate Dawn Mars Gravity assist requirements in week 05 and MSPA 6 of 10 remaining passes with M01O at 34M allowing M01O to uplink. (1,2,3)

☺ SOHO Keyhole and TSO move from 34B1 to DSS-27,34H and reduce to minimal Southern Hemisphere ranging requirements at Canberra during TSO in week 03 and Keyhole in week 05. (2,3)

☺ STA Prime and Extended Science change 1 pass per week from DSS-26,34,54 to DSS-34,45 and remaining passes to DSS-26,54. (2,3)

☺ STB Prime and Extended Science change 1 pass per week from DSS-26,34,54 to DSS-34,45 and remaining passes to DSS-26,54. (2,3)

VGR2 delete 1 – 2 passes per week and reduce remaining passes to 6 hours per week. (2,3)



# Resource Allocation Review Events, Recommendations and Analyses



2009 – January (Weeks 01 - 05) (continued)

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## ANALYSES

1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, GSSR Asteroid 1998 CS1 and Mercury GBT observations, M01O, MEX, MRO, MSGR, NHPC, SOHO, STF, VGR1 and WMAP. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-43 Downtime. Currently there are no MSPA activities requested.
2. (34HEF) The projected unsupportable time is moderate to severe for DSS Maintenance, MEX, MRO SOHO, VGR1 and VGR2. Contention is heavy at all antennas, but more so at DSS-45 from offloading of DSS-43. Elevated requirements for special activities such as EPOXI Earth Flyby and TCM, LCRO Impact, MRO Relay and Science, SOHO Keyhole and SDU EGA contribute to the high contention.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CHDR, CLU2, DSS Maintenance, EPOXI, INTG, LCRO, MRO, MSGR, NExT, SOHO, STA, STB, STF, VGR2 and WIND. Contention is heavy at all antennas, but more so at DSS-34 from offloading of DSS-43. Elevated requirements for special activities such as EPOXI Earth Flyby and TCM, LCRO Impact, MRO Relay and Science, SOHO Keyhole and SDU EGA contribute to the high contention. Currently there are no MSPA activities requested.

Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – February (Weeks 06 - 09)

#### **EVENTS**

DSS-43 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Dawn Delta DOR; Mars Optimal Gravity Assist ends in week 07 and Optimal MGA begins in week 08

EPOXI Prime Shift ends in week 06; TCM ends in week 06

EGS Calibration in week 07; EVN J-M5 in week 07; Global VLBI in week 08

GBRA Guest Observation; Host Country; PRA-GAVRT

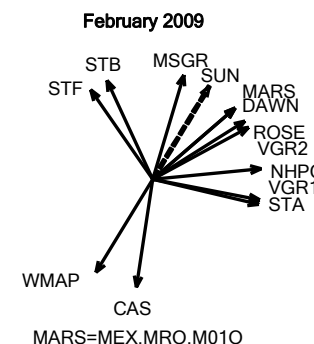
GSSR Asteroid 1999 AQ10 in weeks 07 and 08; GODR in weeks 07 and 09

INTEGRAL Redu Maintenance in weeks 06 and 09

Kepler Commissioning begins in week 08 – 09, Dust Cover Eject in week 09, Initial Acquisition and Launch in week 08

LCROSS Impact Target ends in week 06, Impact in week 06

Mars Express Occultation, Bi-Static Radar in weeks 06 and 08







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – February (Weeks 06 - 09) (continued)

#### EVENTS

Mars Reconnaissance Orbiter Relay and Science, X/Ka-Delta DOR in week 08

New Horizons Beacon, Cruise Telemetry in week 06

NExT EGA Post Nav ends in week 08; EGA Cleanup in week 09

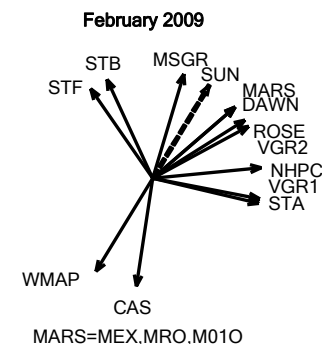
RFC Cat S/X in weeks 07 and 08, X/Ka in week 09, Clock Sync weeks 07 and 09

SGP Crustal Dynamics B-M4 in week 06; H-M4 in week 08

SOHO Keyhole ends in week 08; Maneuver in week 07

Voyager 1 MAGROL in week 06

Voyager 2 BLF D/L and U/L in week 06; SEQ B143 D/L and U/L in week 07





# Resource Allocation Review Events, Recommendations and Analyses



2009 – February (Weeks 06 - 09) (continued)

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## RECOMMENDATIONS

☺ LCRO move from 34H to DSS-24,34,45,65 support in week 06. (3)

☺ M01O and MRO MSPA six 70M passes at DSS-14,63. (1,2,3)

MRO reduce 34M requirements by 5 passes in each week to accommodate Dawn Mars Gravity assist in week 06 and 07 and Kepler Launch and Commissioning requirements in weeks 08 and 09 and MSPA 6 of 10 remaining passes with M01O at 34M allowing M01O to uplink. (1,2,3)

☺ SOHO Keyhole reduce to minimal Southern Hemisphere ranging requirements at DSS-34 and DSS-45 in weeks 06 and 07. (2,3)

VGR2 reduce DSS-34,45 passes from 8 to 6 hours. (2,3)



# Resource Allocation Review Events, Recommendations and Analyses



2009 – February (Weeks 06 - 09) (continued)

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## ANALYSES

1. (70M) The projected unsupportable time is moderate to extreme for CLU2, DSS Maintenance, M01O, MEX, MRO, SOHO, STF, VGR1 and WMAP. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-43 Downtime. Currently there are no MSPA activities requested.
2. (34HEF) The projected unsupportable time is moderate to extreme for DSS Maintenance, MEX, MRO SOHO, VGR1 and VGR2. Contention is heavy at all antennas, but more so at DSS-45 from offloading of DSS-43. Elevated requirements for special activities such as DAWN MGA, EPOXI Earth Flyby and TCM, LCRO Impact, MRO Relay and Science, SOHO Keyhole and SDU EGA contribute to the high contention.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CLU2, DSS Maintenance, EPOXI, INTG, MRO, MSGR, NExT, SOHO, STA, STB, STF, VGR2 and WIND. Contention is heavy at all antennas, but more so at DSS-34 from offloading of DSS-43. Elevated requirements for special activities such as Kepler Launch and Commissioning, LCRO Impact and Targeting, MRO Relay and Science, SOHO Keyhole and NExT EGA contribute to the high contention. Currently there are no MSPA activities requested.

Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – March (Weeks 10 - 13)

#### EVENTS

DSS-43 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension) ends in week 13, DOY 273  
DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Dawn Delta DOR and Optimal MGA

GBRA Guest Observation; Host Country; PRA-GAVRT

GSSR GODR in weeks 11 and 13

INTEGRAL Redu Maintenance in weeks 11 and 13

Kepler Commissioning ends in week 12; Early Science Ops begins in week 12; Quarterly Roll Science in week 12

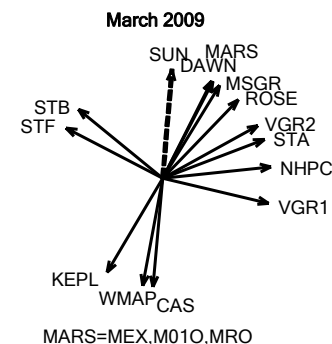
Mars Express Occultation; Bi-Static Radar in weeks 10 and 12

Mars Reconnaissance Orbiter Relay and Science

New Horizons Beacon, Cruise Telemetry in week 10

NExT Cruise 2a in week 13; Post TCM Nav in weeks 10 – 12

RFC Cat S/X in week 13; X/Ka in week 10; Clock Sync weeks 11 and 13





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – March (Weeks 10 - 13) (continued)

#### EVENTS

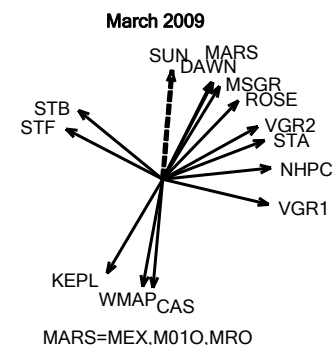
SGP Crustal Dynamics W-M4 in week 10; B-M4 in week 12; H-M4 in week 13

SOHO TSO in week 13

Voyager 1 MAGROL in week 11; DTR Array in week 12

Voyager 2 MAGROL and ASCAL in week 11; XB High Power in week 11; XB Low Power in week 13

Wind TCM in week 10





# Resource Allocation Review Events, Recommendations and Analyses



2009 – March (Weeks 10 - 13) (continued)

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## RECOMMENDATIONS

**M01O and MRO MSPA six 70M passes at DSS-14,63.** M01O MSPA remaining standalone pass downlink only with MEX Occultation at DSS-14 and add 1 pass at DSS-25,26 to meet uplink requirement. (1,2,3)

**MRO reduce 34M requirements by approximately 5 passes in each week to accommodate Kepler Commissioning requirements** and MSPA 6 of 10 remaining passes with M01O at 34M allowing M01O to uplink in weeks 10 and 11. (1,2,3)

**MEX Orbital Science and Occultation move 6 of 7 passes from DSS-14,15 to DSS-15 and MSPA 1 pass with M01O at DSS-14.** (1,2,3)

**VGR2 reduce DSS-34,45 passes from 8 to 6 hours.** (2,3)



# Resource Allocation Review Events, Recommendations and Analyses



2009 – March (Weeks 10 - 13) (continued)

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## ANALYSES

1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, M01O, MEX, and STF. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-43 Downtime. Currently there are no MSPA activities requested.
2. (34HEF) The projected unsupportable time is moderate for DSS Maintenance, SOHO and VGR2. Contention is primarily at DSS-45 from offloading of DSS-43.
3. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CLU2, DSS Maintenance, INTG, MRO, MSGR, STF, VGR2 and WIND. Contention is heavy at DSS-34 from offloading of DSS-43. Elevated requirements for special activities such as Kepler Commissioning and MRO Relay and Science contribute to the high contention. Currently there are no MSPA activities requested.

Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – April (Weeks 14 - 17)

#### EVENTS

DSS-63 approved downtime (Life Extension) begins week 14, DOY 089

DSS-66 approved downtime (Extended Downtime)

ATOT A01 Image in week 17

Cassini Tour

Chandra ACA D/C Measurement in week 16

Dawn Delta DOR and Optimal MGA

GBRA Guest Observation; Host Country in weeks 14 and 16; PRA-GAVRT

GSSR GODR in week 15; Mercury in week 17

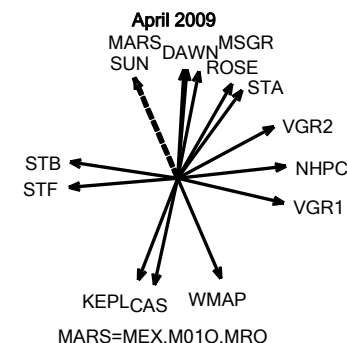
INTEGRAL Redu Maintenance in weeks 15 and 17

Kepler Early Science Ops ends in week 16, Monthly Science in week 16,  
Science Ops begins in week 17

Mars Express Occultation ends in week 15; Bi-Static Radar in weeks 14 and 16

Mars Reconnaissance Orbiter Relay and Science; X/Ka-Delta DOR in week 16

Hayabusa Orbit Determination in week 16







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – April (Weeks 14 - 17) (continued)

#### EVENTS

**NExT Cruise 2a in week 17**

**New Horizons Beacon, Cruise Telemetry in week 14**

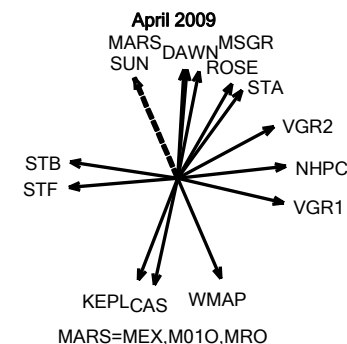
**RFC Cat S/X in week 14; X/Ka in weeks 15 and 16; Clock Sync weeks 15 and 17**

**SGP Crustal Dynamics W-M4 in week 14; B-M4 in week 15; H-M4 in week 16**

**Stereo Ahead HGA CAL in week 14**

**Stereo Behind HGA CAL in week 14**

**Voyager 1 A071 U/L BU, D/L CONF BU, SEQ A071 U/L and SEQ D/L CONF in week 15**





# Resource Allocation Review Events, Recommendations and Analyses



2009 – April (Weeks 14 - 17) (continued)

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## RECOMMENDATIONS

**M01O and MRO MSPA three 70M passes with at DSS-14,43. M01O MSPA 2 passes downlink only with MEX Occultation at DSS-14 and add 2 passes at DSS-25,26 to meet uplink requirement.**

**☺ MRO MSPA 3 of 16 with M01O at 34M allowing M01O to uplink. (1,2,3)**

**MEX Orbital Science and Occultation move 5 of 7 passes from DSS-14,15 to DSS-15 and MSPA 2 passes with M01O at DSS-14.**



# Resource Allocation Review Events, Recommendations and Analyses

2009 – April (Weeks 14 - 17) (continued)

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, M01O, MEX, STF, SOHO, VGR1 and VGR2. Contention is due to elevated requirements of MRO Relay and Science compounded by the DSS-63 downtime. Currently there are no MSPA activities requested.
2. (34BWG1) The projected unsupportable time is moderate to severe for ACE, DSS Maintenance, SOHO, STF and WIND. Contention is due elevated requirements for MRO Relay and Science and SOHO Keyhole. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations



## **EVENTS**

**DSS-63 approved downtime (Life Extension)**

**DSS-66 approved downtime (Extended Downtime)**

**Cassini Tour**

**Chandra Earth Eclipse begins in week 22**

**Dawn Delta DOR and Optimal MGA**

**EGS Global VLBI in week 21; EVN J-M5 in week 22**

**GBRA Guest Observation, Host Country in week 18, 20 and 22 PRA-GAVRT**

**GSSR GODR in week 18; Mercury and Venus GBT in week 21**

**INTEGRAL Redu Maintenance in weeks 19 and 21**

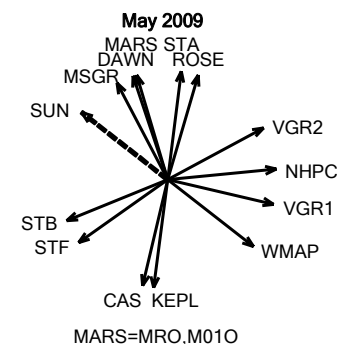
**Kepler Monthly Science in week 21, Science Ops**

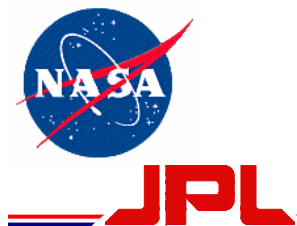
**Mars Express Bi-Static Radar in weeks 18, 20 and 22**

**Mars Reconnaissance Orbiter Relay and Science**

**Hayabusa Orbit Determination in week 16**

**NExT Cruise 2a in week 21**





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – May (Weeks 18 - 22) (continued)

#### EVENTS

New Horizons Beacon, Cruise Telemetry in weeks 18 and 22

RFC Cat S/X in week 19 and 20; X/Ka in week 21 and 22; Clock Sync weeks 19 and 21

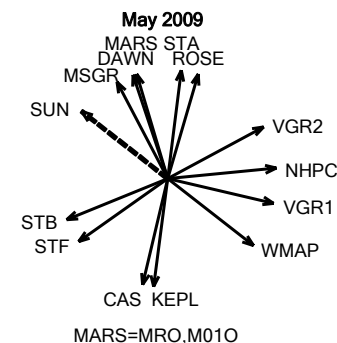
SGP Crustal Dynamics W-M4 in weeks 18 and 21; H-M4 in week 19; B-M4 in week 20

SOHO Maneuver in week 20; Keyhole in week 18 – 20; HSO begins in week 21

Voyager 1 DTR Array in week 18; ASCAL and MAGROL in week 19

Voyager 2 MAGROL in week 18; BLF U/L and BLF D/L in week 18 and 19; B144 U/L and D/L, SEQ B144 U/L and D/L in week 20

WMAP Maneuver in week 20





# Resource Allocation Review Events, Recommendations and Analyses

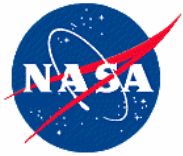


2009 – May (Weeks 18 - 22) (continued)

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## RECOMMENDATIONS

- ☺ GSSR change Mercury GBT and Venus GBT support from six 3-hour supports to three 4-hour combined supports in week 21.
- ☺ M01O and MRO MSPA 3 of 3 70M passes at DSS-14,43.
- ☺ MRO MSPA 3 of 16 passes with M01O at 34M allowing M01O to uplink.
- ☺ MEX Orbital Science move 7 of 7 passes from DSS-14,15 to DSS-15,25,26.



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – May (Weeks 18 - 22) (continued)**

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## **ANALYSES**

(70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, M01O, MEX, MRO and SOHO Keyhole. Contention is due to SOHO Keyhole GSSR Mercury GBT and Venus GBT and oversubscription of MARS view by M01O, MRO and MEX compounded by the DSS-63 downtime.

Contention levels on the 34HEF, 34BWG1, 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



## **EVENTS**

**DSS-63 approved downtime (Life Extension)**  
**DSS-66 approved downtime (Extended Downtime)**

**Cassini Tour**

**Chandra Earth Eclipse ends in week 26**

**Dawn Delta DOR and Optimal MGA**

**EPOXI Delta DOR and Prime Shift in week 26**

**GBRA Guest Observation; Host Country; PRA-GAVRT**

**GSSR Asteroid 1994 CC in week 24; Mercury in weeks 25 and 26**

**INTEGRAL Redu Maintenance in weeks 24 and 26**

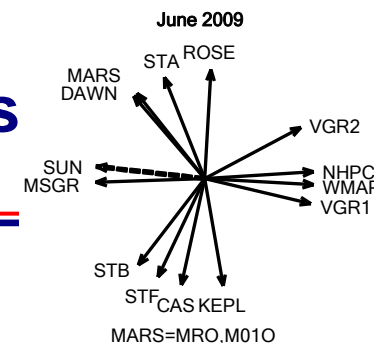
**Kepler Quarterly Roll and Science in week 25, Science Ops**

**Mars Express Bi-Static Radar in weeks 24 and 26**

**Mars Reconnaissance Orbiter X/Ka-Delta DOR in week 24, Relay and Science**

**NExT Cruise 2a in week 25**

**New Horizons Beacon; Maneuver in weeks 23 and 24, Cruise Telemetry in week 25**







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – June (Weeks 23 - 26) (continued)

#### EVENTS

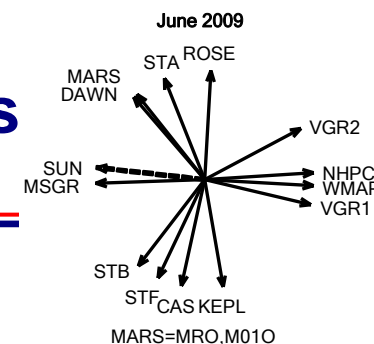
RFC Cat S/X in weeks 25 and 26; Clock Sync weeks 23 and 25

SGP Crustal Dynamics H-M4 in week 23; W-M4 in week 25; B-M4 in week 26

SOHO HSO

Voyager 2 MAGROL in week 25

Wind TCM in week 23





# Resource Allocation Review Events, Recommendations and Analyses



2009 – June (Weeks 23 - 26) (continued)

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## RECOMMENDATIONS

DSS Maintenance delete one 8-hour maintenance period at DSS-14.

- ☺ M01O and MRO MSPA 3 70M passes at DSS-14,43 in weeks 23,25 and 26. M01O and MRO MSPA 3 70M passes at DSS-43 in week 24. M01O move 2 of 4 remaining standalone passes at DSS-14,43 to DSS-43 and MSPA remaining 2 passes with MEX Orbital Science and move to DSS-15,25,26 in week 24.
- ☺ MEX Orbital Science move 7 of 7 passes from DSS-14,15 to the DSS-15,25,26 in weeks 23,25 and 26. Move 5 of 7 passes from DSS-14,15 to the DSS-15,25,26 and MSPA 2 remaining passes with M01O Mapping in week 24.



# **Resource Allocation Review Events, Recommendations and Analyses**

**2009 – June (Weeks 23 - 26) (continued)**

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## **ANALYSES**

(70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, M01O, MEX, MRO and NHPC. Contention is due to oversubscription of MARS view by M01O, MRO and MEX and GSSR Asteroid 1994 CC observations in week 24 and NHPC Maneuver in weeks 23 and 24 compounded by the DSS-63 downtime.

Contention levels on the 34HEF, 34BWG1, 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – July (Weeks 27 - 31)

#### EVENTS

DSS-63 approved downtime (Life Extension)

DSS-66 approved downtime (Extended Downtime)

DSS-24 approved downtime for Ka-Band Phase 2 Install and Depot Level

Maintenance (NIB to Ka-Band Phase 2 Install) beginning in week 28, DOY 187

Cassini Tour

Chandra ACA D/C Measurement in week 29

Dawn Delta DOR in weeks 27 – 29 and 31; Optimal MGA ends in week 30; Vesta Thrust begins in week 31

GBRA Guest Observation; Host Country in weeks 27 – 30; PRA-GAVRT

GSSR Mercury in weeks 27 and 28

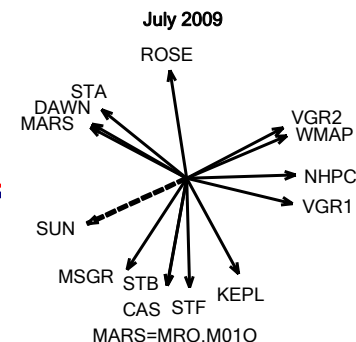
INTEGRAL Redu Maintenance in weeks 28 and 30

Kepler Monthly Science in week 30, Science Ops

Mars Express Bi-Static Radar in weeks 28 and 30

Mars Odyssey THEMIS begins in week 27

Mars Reconnaissance Orbiter Relay and Science





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – July (Weeks 27 - 31) (continued)

#### EVENTS

Messenger Delta DOR in weeks 29 – 31

New Horizons Beacon, Cruise Telemetry in week 29

NExT Cruise 2a in week 29

RFC CAT x/Ka in weeks 27 and 28; S/X in week 31; Clock sync in weeks 27, 29 and 31

SGP Crustal Dynamics H-M4 in week 28; B-M4 in week 30; W-M4 in week 31

SOHO HSO ends in week 29; Keyhole begins in week 29

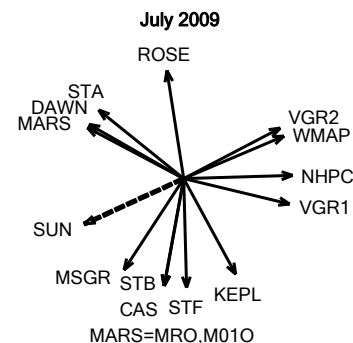
Stereo Ahead HGA Cal in week 28

Stereo Behind HGA Cal in week 28

Voyager 1 A072 U/L BU, D/L CONF BU, SEQ A072 U/L, and SEQ D/L CONF in week 28

Voyager 2 BLF U/L and D/L in week 31

Wind TCM in week 27





# Resource Allocation Review Events, Recommendations and Analyses



2009 – July (Weeks 27 - 31) (continued)

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## RECOMMENDATIONS

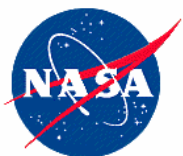
DSS Maintenance delete one 8-hour maintenance period at DSS-14 (1)

☺ GSSR Mercury delete 2 of 2 supports in weeks 27 and 28 (1)

☺ M01O THEMIS MSPA 3 of 10 DSS-14,43 passes with MRO. M01O reduce all 70M passes from 12 to 8 hours (1)

☺ MRO MSPA 3 passes with M01O THEMIS at DSS-14,43 (1)

☺ MEX move 2 DSS-15,14 passes to DSS-15 (1)



# Resource Allocation Review Events, Recommendations and Analyses

2009 – July (Weeks 27 - 31) (continued)

## ANALYSES

1. 70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, GSSR Mercury, M01O, MEX, MRO, SOHO Keyhole, STF and VGR2. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-63 Downtime.
2. (34HEF) The projected unsupportable time is moderate to severe for ACE, DSS Maintenance, MEX, MRO and SOHO HSO and Keyhole. Contention is heavy at all antennas, but more so at DSS-65 from offloading of DSS-63. Elevated requirements for special activities such as SOHO HSO and Keyhole contribute to the high contention.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, DSS Maintenance, SOHO Keyhole and STA. Contention is heavy at all antennas, but more so at DSS-54 from offloading of DSS-63. Elevated requirements for special activities such as SOHO Keyhole contribute to the high contention.

Contention levels on the 34BWG2, 34HSB and 26M subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – August (Weeks 32 - 35)

#### EVENTS

DSS-24 approved downtime for Ka-Band Phase 2 Install and Depot Level Maintenance (NIB to Ka-Band Phase 2 Install)

DSS-63 approved downtime (Life Extension)

DSS-66 approved downtime (Extended Downtime)

DSS-46 approved downtime (Extended Downtime) beginning in week 32

Cassini Tour

Dawn Delta DOR in weeks 33 and 35, and Vesta Thrust

GBRA Guest Observation; Host Country in weeks 32 – 35; PRA-GAVRT

GSSR Venus GBT in week 32

INTEGRAL Redu Maintenance in weeks 32 and 34

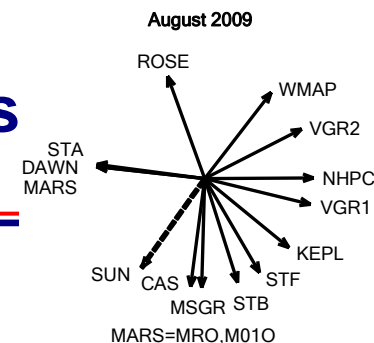
Kepler Monthly Science in week 34, Science Ops

Mars Express Bi-Static Radar in weeks 32 and 34

Mars Odyssey THEMIS

Mars Reconnaissance Orbiter X/Ka-Delta DOR in week 32, Relay and Science

Messenger TCM in weeks 34 and 35; Delta DOR in week 35







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – August (Weeks 32 - 35) (continued)

#### EVENTS

New Horizons Beacon, Cruise Telemetry in week 33

NExT Cruise 2a in week 33

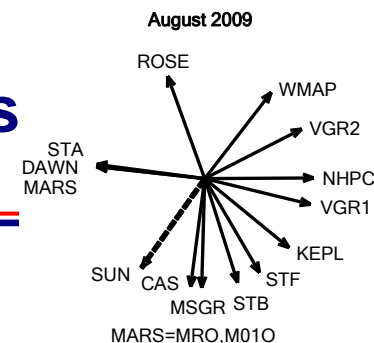
RFC CAT X/Ka in weeks 33 and 34; S/X in week 32; Clock Sync in weeks 33 and 35

SGP Crustal Dynamics B-M4 in week 33; W-M4 in week 34; H-M4 in week 35

SOHO Keyhole Maneuver in week 33; Keyhole ends in week 34

Voyager 1 MAGROL in week 32

Voyager 2 BLF U/L and D/L in week 32; B145 U/L BU and D/L BU in week 33; SEQ B145 U/L and D/L in week 33





# Resource Allocation Review Events, Recommendations and Analyses



2009 – August (Weeks 32 - 35) (continued)

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## RECOMMENDATIONS

DSS Maintenance delete one 8-hour maintenance period at DSS-14 (1)

☺ M01O THEMIS MSPA 3 of 10 DSS-14,43 passes with MRO. M01O reduce all 70M passes from 12 to 8 hours (1)

☺ MRO MSPA 3 passes with M01O THEMIS at DSS-14,43 (1)

☺ MEX move 2 DSS-15,14 passes to DSS-15 (1)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – August (Weeks 32 - 35) (continued)**

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, GSSR Venus GBT, M010 THEMIS, MEX, MRO, SOHO Keyhole and Maneuver and STF. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-63 Downtime.
2. (34HEF) The projected unsupportable time is moderate for DSS Maintenance and SOHO Keyhole. Contention is heavy at all antennas, but more so at DSS-65 from offloading of DSS-63. Elevated requirements for special activities such as SOHO Keyhole contribute to the contention.
3. (34BWG1) The projected unsupportable time is moderate to severe for DSS Maintenance, SOHO Keyhole and WIND. Contention is heavy at all antennas, but more so at DSS-54 from offloading of DSS-63. Elevated requirements for special activities such as SOHO Keyhole contribute to the contention.
4. The 26m subnet is no longer being scheduled.

Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – September (Weeks 36 - 39)

#### **EVENTS**

DSS-24 approved downtime for Ka-Band Phase 2 Install and Depot Level Maintenance (NIB to Ka-Band Phase 2 Install) ends in week 38, DOY 263

DSS-63 approved downtime (Life Extension) ends in week 39, DOY 270

DSS-66 approved downtime (Extended Downtime)

DSS-46 approved downtime (Extended Downtime)

#### Cassini Tour

Dawn Delta DOR in weeks 37 and 39, and Vesta Thrust

GBRA Guest Observation; Host Country in weeks 36 – 38; PRA-GAVRT

GSSR Asteroid 2000 CO10 in week 38; GODR in week 38; Mercury in weeks 36 and 39

INTEGRAL Redu Maintenance in weeks 37 and 39

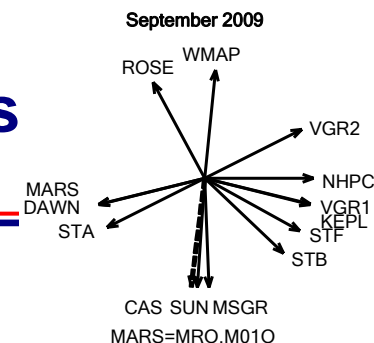
Kepler Quarterly Roll and Science in week 38, Science Ops

Mars Express Bi-Static Radar in weeks 36 and 38; Occultation begins week 38

Mars Odyssey THEMIS

Mars Reconnaissance Orbiter Relay and Science

Messenger Delta DOR in week 36; TCM in week 38

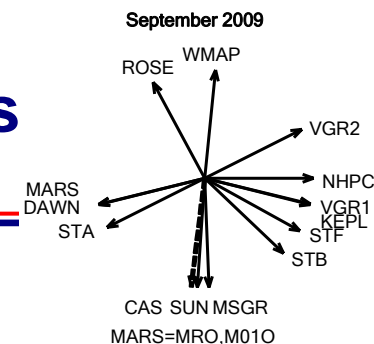




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – September (Weeks 36 - 39) (continued)



**MSL Launch and Early Operations begin in week 38 DOY 258**

**New Horizons Beacon in weeks 36 and 38; Checkout begins week 37;  
Delta DOR in weeks 37 and 38; L MET CCD CMD in week 39**

**NExT Cruise 2a in week 37**

**RFC CAT X/Ka in week 39; S/X in weeks 37 and 38; Clock Sync in weeks 37 and 39**

**SGP Crustal Dynamics B-M4 in week 36; W-M4 in week 38; B-M4 in week 39**

**SOHO TSO in week 39**

**Voyager 1 MAGROL in week 38; DTR Array in week 39**

**Voyager 2 ASCAL in week 37; XB High Power in week 37; MAGROL in week 38; XB Low Power in week 39**

**WMAP Maneuver in week 36**



# Resource Allocation Review Events, Recommendations and Analyses



2009 – September (Weeks 36 - 39) (continued)

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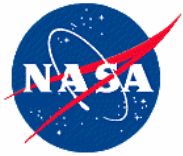
## RECOMMENDATIONS

DSS Maintenance delete one 8-hour maintenance period at DSS-14 (1)

☺ M01O THEMIS MSPA 3 of 10 DSS-14,43 passes with MRO. M01O reduce all 70M passes from 12 to 8 hours (1)

☺ MRO MSPA 3 passes with M01O THEMIS at DSS-14,43 (1)

☺ MEX move 2 DSS-15,14 passes to DSS-15 (1)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – September (Weeks 36 - 39) (continued)**

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## **ANALYSES**

1. **70M)** The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, M01O THEMIS, MEX, MRO and STF. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-63 Downtime.
2. **(34HEF)** The projected unsupportable time is moderate for ACE, DSS Maintenance and SOHO TSO. Contention is heavy at all antennas, but more so at DSS-65 from offloading of DSS-63 and the closure of DSS-46. Elevated requirements for special activities such as SOHO TSO contribute to the contention.
3. **(34BWG1)** The projected unsupportable time is moderate to severe for Cassini, DSS Maintenance, MRO and WIND. Contention is heavy at all antennas, but more so at DSS-54 from offloading of DSS-63.

**Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations.**



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – October (Weeks 40 - 44)

#### EVENTS

DSS-14 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension) beginning in week 40, DOY 277

DSS-46 approved downtime (Extended Downtime)

DSS-65 approved downtime (Life Extension Elevation) beginning in week 40

DSS-66 approved downtime (Extended Downtime)

ATOT Mission in week 41

Cassini Tour

Chandra ACA D/C Measurement in week 42

Dawn Delta DOR in weeks 41 and 43, and Vesta Thrust

EGS Calibration in week 43; EVN J-M5 in week 43

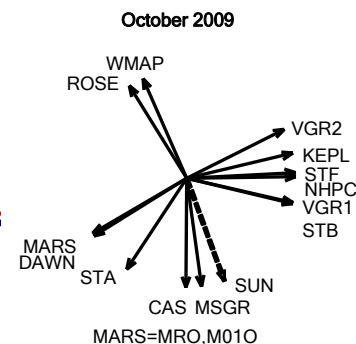
GBRA Guest Observation; Host Country in weeks 40 and 42 – 44

INTEGRAL Redu Maintenance in weeks 41 and 43

Kepler Monthly Science in week 43, Science Ops

Mars Express Bi-Static Radar in weeks 40, 42 and 44, Occultation

Mars Odyssey THEMIS



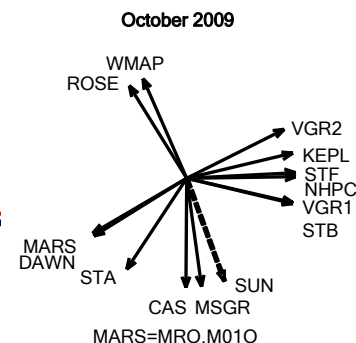




# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – October (Weeks 40 - 44) (continued)



#### **EVENTS**

**Mars Reconnaissance Orbiter X/Ka-Delta DOR and Relay and Science**

**Messenger TCM in weeks 40 and 43; Delta DOR in weeks 40 and 41; Mercury Flyby 3 DOY 273 and Flyby 3 support in weeks 40 and 41**

**MSL ACS Nav Cal and TCM in week 40; Cruise and Delta DOR begins week 42; FS C/O 1 begins in week 44; Launch Support ends in week 42**

**New Horizons Checkout; Delta DOR in weeks 43 and 44; L MET CCD CMD in week 44**

**NExT Cruise 2a in week 41**

**RFC CAT X/Ka in week 40; S/X in weeks 43 and 44; Clock Sync in weeks 41 and 43**

**Rosetta Third Earth Swingby begins in week 44 on DOY 292**

**SGP Crustal Dynamics W-M4 in week 43; H-M4 in week 44**

**SOHO Keyhole begins in week 44**

**Stereo Ahead HGA CAL in week 40**

**Stereo Behind HGA CAL in week 40**

**Voyager 1 A073 U/L BU, D/L CONF BU in week 41; MAGROL Array in week 44; SEQ A073 U/L and SEQ D/L CONF in week 41**

**Voyager 2 BLF U/L and D/L in week 44; MAGROL in week 44**

**Wind TCM in week 40**

02/11/2008

Final

2.0 – 88



# Resource Allocation Review Events, Recommendations and Analyses



2009 – October (Weeks 40 - 44) (continued)

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## RECOMMENDATIONS

DSS Maintenance delete 6-hour maintenance period at DSS-63 (1)

☺ M01O THEMIS MSPA with MRO 3 70M passes at DSS-43 and MSPA with MEX Occultation 3 70M passes at DSS-63, move 6 70M passes to 34M (1)

☺ MEX MSPA 3 Occultation passes with M01O THEMIS at DSS-63 (1)

☺ MRO Relay and Science MSPA 3 70M passes with M01O THEMIS at DSS-43 (1)

MSL TCM (L+15 days) accept up to 4 hour 70M gap in continuous coverage on TCM day due to overlapping view during MESSENGER Mercury Flyby 3. (1)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – October (Weeks 40 - 44) (continued)**

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, M01O THEMIS, MRO, MSGR Flyby 3, MSL TCM, SOHO, STF, VGR1 and VGR2. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-14 Downtime.
2. (34HEF) The projected unsupportable time is moderate for DSS Maintenance and MEX Occultation. Contention is heavy at all antennas, but more so at DSS-15 from offloading of DSS-14 and the closure of DSS-46.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, Deep Impact, DSS Maintenance, MRO, SOHO Keyhole and WIND. Contention is heavy at all antennas, but more so at DSS-24 and DSS-34 from offloading of DSS-14 and the closure of DSS-46.

Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – November (Weeks 45 - 48)

#### **EVENTS**

DSS-14 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension)

DSS-46 approved downtime (Extended Downtime)

DSS-65 approved downtime (Life Extension Elevation) ends in week 48

DSS-66 approved downtime (Extended Downtime)

ATOT Mission in week 48

Cassini Tour

Chandra Leonid Pass in weeks 46 and 47; Earth Eclipse begins in week 48

Dawn Delta DOR in weeks 45 and 47, and Vesta Thrust

EPOXI TCM begins in week 45; Delta DOR begins in week 45; Prime Shift begins in week 47

EGS Global VLBI in week 45

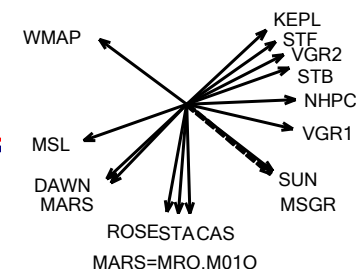
GBRA Guest Observation; Host Country

INTEGRAL Redu Maintenance in weeks 45 and 47

Kepler Monthly Science in week 47, Science Ops

Mars Express Bi-Static Radar in weeks 46 and 48, Occultation

November 2009





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – November (Weeks 45 - 48) (continued)

#### EVENTS

**Mars Odyssey THEMIS**

**Mars Reconnaissance Orbiter X/Ka-Delta DOR in week 48; Relay and Science**

**MSL TCM in week 46, Cruise and Delta DOR; FS C/O 1 ends in week 46**

**New Horizons Checkout ends in week 46; Beacon in weeks 47 and 48**

**NExT Cruise 2a in week 45**

**RFC CAT X/Ka in weeks 45 and 46; Clock Sync in weeks 45 and 47**

**Rosetta Earth Swingby in week 46 DOY 317, ends in week 47 DOY 326**

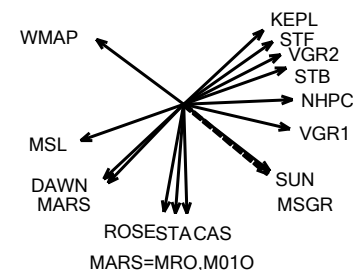
**SGP Crustal Dynamics W-M4 in week 46; H-M4 in week 48**

**SOHO Keyhole ends in week 46; Maneuver in week 45**

**Voyager 1 Ascal Array in week 45; MAGROL Array in week 45**

**Voyager 2 B146 U/L and D/L BU in week 46; BLF U/L and D/L in week 45; SEQ B146 U/L and D/L in week 46**

November 2009





# Resource Allocation Review Events, Recommendations and Analyses



2009 – November (Weeks 45 - 48) (continued)

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## RECOMMENDATIONS

DSS Maintenance delete 6-hour maintenance period at DSS-63 (1)

☺ M01O THEMIS MSPA with MRO 3 70M passes at DSS-43 and MSPA with MEX Occultation 3 70M passes at DSS-63, move 6 70M passes to 34M (1)

☺ MEX MSPA 3 Occultation passes with M01O THEMIS at DSS-63 (1)

☺ MRO Relay and Science MSPA 3 70M passes with M01O THEMIS at DSS-43 (1)



# Resource Allocation Review Events, Recommendations and Analyses



**2009 – November (Weeks 45 - 48) (continued)**

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, M01O THEMIS, MRO, MSL TCM, SOHO Keyhole and VGR2. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-14 Downtime.
2. (34HEF) The projected unsupportable time is moderate for DSS Maintenance and MEX Occultation. Contention is heavy at all antennas, but more so at DSS-15 and DSS-45 from offloading of DSS-14 and the closure of DSS-46.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, Deep Impact, DSS Maintenance, MRO, MSGR, MSL, SOHO Keyhole, STA, STF and WIND. Contention is heavy at all antennas, but more so at DSS-24 and DSS-34 from offloading of DSS-14 and the closure of DSS-46.

Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – December (Weeks 49 - 53)

#### **EVENTS**

DSS-14 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

ATOT Mission in week 49

Cassini Tour

Chandra Earth Eclipse ends in week 52

Dawn Vesta Thrust; Delta DOR in weeks 49 and 51

EPOXI Delta DOR in weeks 49, 51 and 53; Earth Flyby in weeks 52 and 53; TCM ends in week 51, Prime Shift

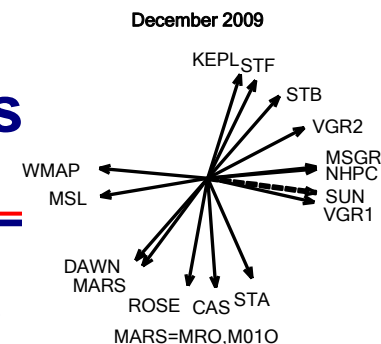
GBRA Host Country in weeks 49, 50 and 52

INTEGRAL Redu Maintenance in weeks 49 and 51

Kepler Quarterly Roll and Science in week 51, Science Ops

Mars Express Bi-Static Radar in weeks 50 and 52, Occultation

Mars Odyssey THEMIS







# Resource Allocation Review

## Events, Recommendations and Analyses

### 2009 – December (Weeks 49 - 53) (continued)

#### EVENTS

Mars Reconnaissance Orbiter Relay and Science

Messenger DSM-5 in week 49; TCM in week 52

MSL Cruise and Delta DOR

New Horizons Maneuver in weeks 50 and 51; Cruise Telemetry in week 51; Beacon in weeks 49, 51 – 53; Solar Conjunction in weeks 52 and 53

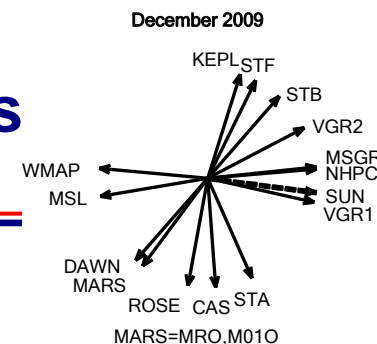
NExT Cruise 2a in weeks 49 and 53

RFC CAT S/X in weeks 49 and 50; X/Ka in weeks 51 and 52; Clock Sync in weeks 49, 51 and 53

SGP Crustal Dynamics B-M4 in weeks 49 and 51; H-M4 in week 50; W-M4 in week 51

SOHO TSO in week 50

Voyager 2 MAGROL in week 51





# Resource Allocation Review Events, Recommendations and Analyses



2009 – December (Weeks 49 – 53) (continued)

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## RECOMMENDATIONS

DSS Maintenance delete 6-hour maintenance period at DSS-63. (1)

☺ M01O THEMIS MSPA with MRO 3 70M passes at DSS-43 and MSPA with MEX Occultation 3 70M passes at DSS-63, move 6 70M passes to 34M (1)

☺ MEX MSPA 3 Occultation passes with M01O THEMIS at DSS-63 (1)

☺ MRO Relay and Science MSPA 3 70M passes with M01O THEMIS at DSS-43 (1)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2009 – December (Weeks 49 - 53) (continued)**

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for Cassini, DSS Maintenance, M01O THEMIS, MRO and VGR2. Contention is due to heavy viewperiod overlap of most missions and compounded by the DSS-14 Downtime.
2. (34HEF) The projected unsupportable time is moderate for DSS Maintenance, M01O, MEX Occultation, SOHO TSO and VGR2. Contention is heavy at all antennas and compounded by SOHO TSO in week 50, but more so at DSS-15 and DSS-45 from offloading of DSS-14 and the closure of DSS-46.
3. (34BWG1) The projected unsupportable time is moderate to severe for ACE, DSS Maintenance, MSGR, STF and VGR2. Contention is heavy at all antennas, but more so at DSS-24 and DSS-34 from offloading of DSS-14 and the closure of DSS-46.

Contention levels on the 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations.



# **Resource Allocation Review Events, Recommendations and Analyses**



## **2010 Events, Recommendations and Analyses**

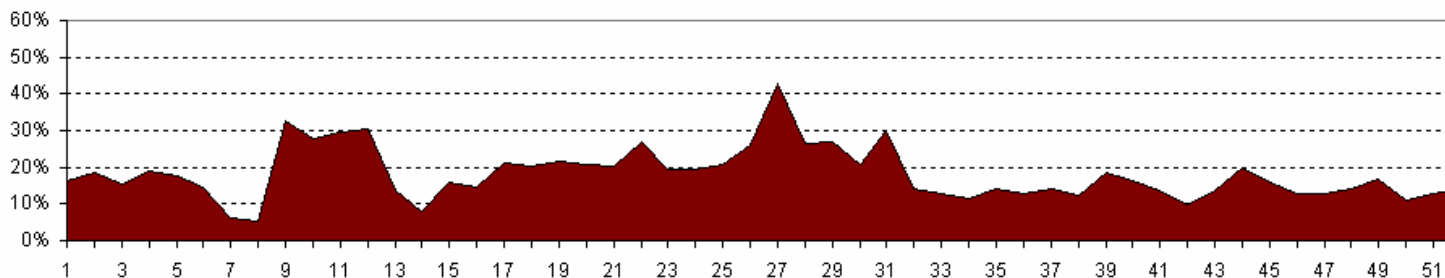


# Resource Allocation Review

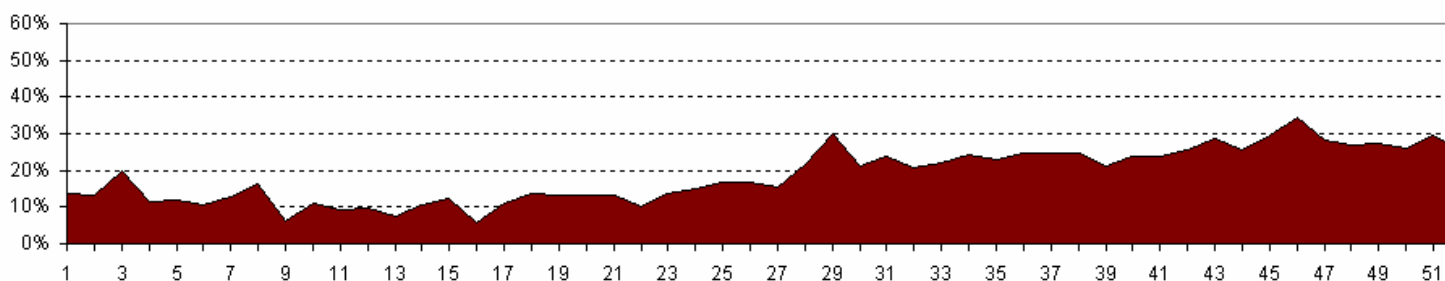
## Events, Recommendations and Analyses

### 2010 Weekly Average User Unsupportable Time

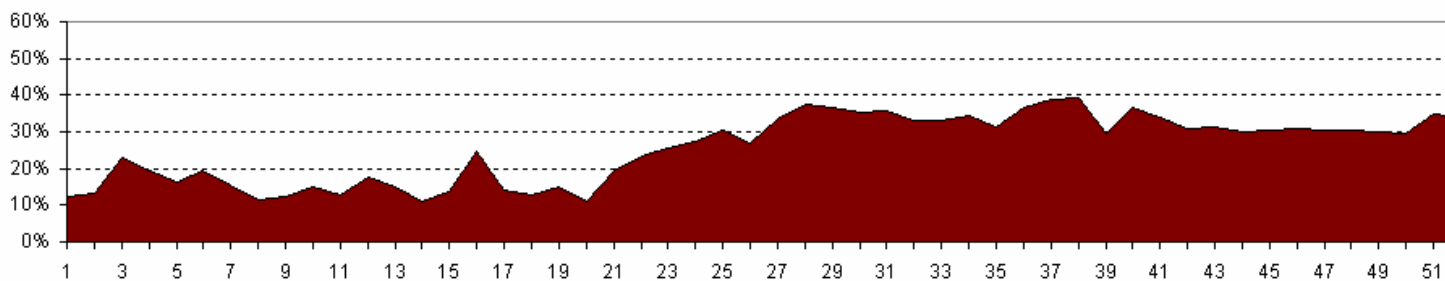
70M

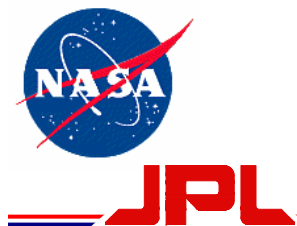


34HEF



34BWG1



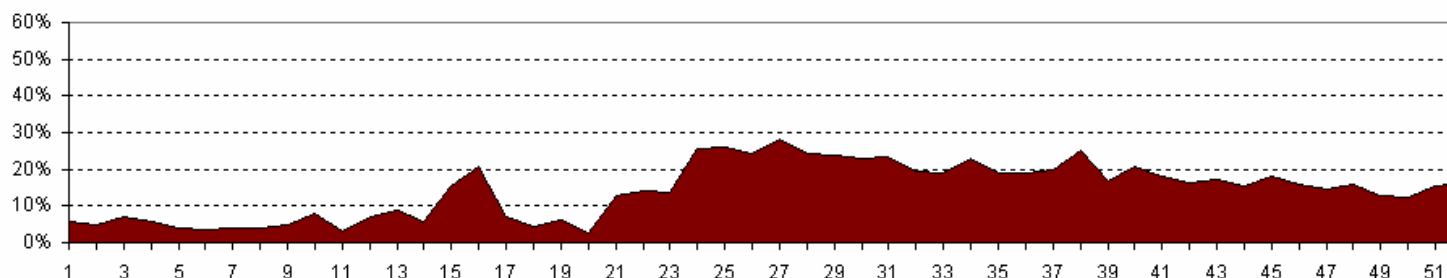


# Resource Allocation Review

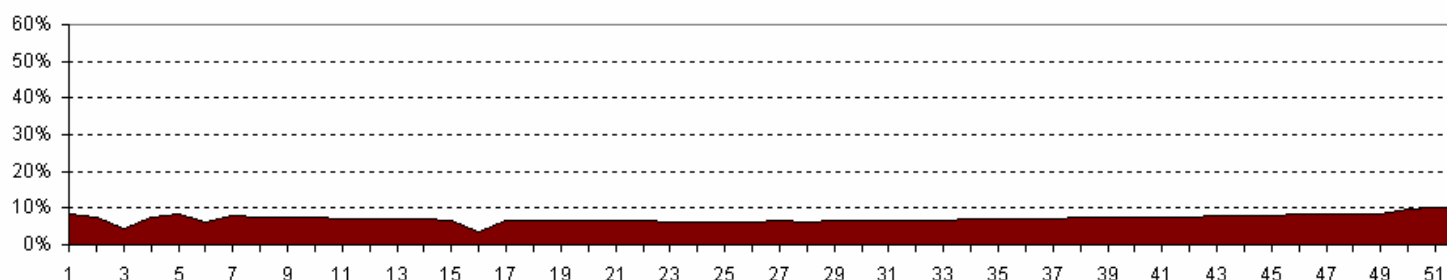
## Events, Recommendations and Analyses

### 2010 Weekly Average User Unsupportable Time

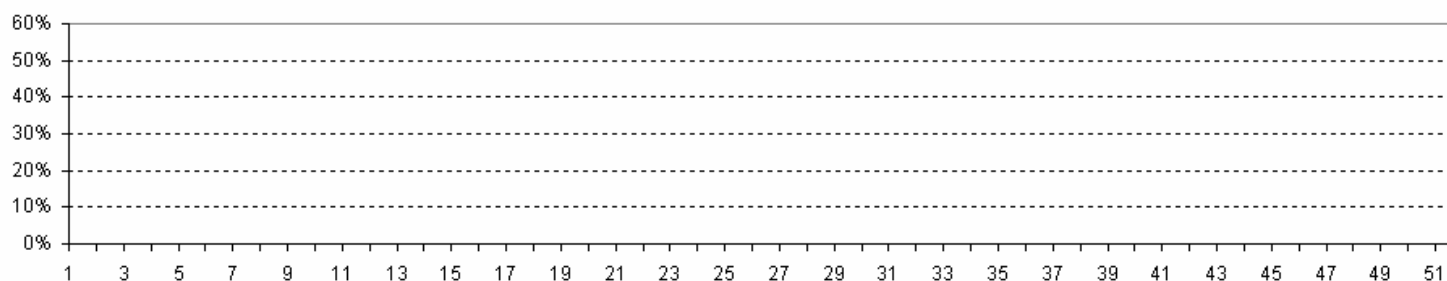
34BWG2

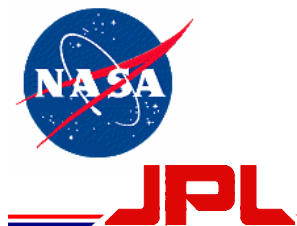


34HSB



26M





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – January (Weeks 01 - 04)

#### EVENTS

DSS-14 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra ACA D/C MESR in week 02

Dawn Delta DOR in weeks 02 and 04; Forced Coast in weeks 03 and 04, and Vesta Thrust

EPOXI Earth Flyby in week 02, Prime Shift weeks 01 – 05, TCM in weeks 02 – 05

GBRA Guest Observation in weeks 01 – 04; Host Country in weeks 02 – 04

Kepler Science Ops, and Monthly Science in week 03

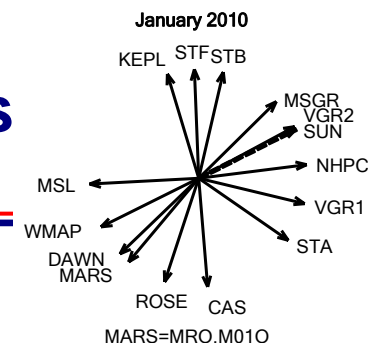
Mars Odyssey 2001 THEMIS

Mars Reconnaissance Orbiter Relay and Science

Mars Express Occultation, Bi-Static Radar in weeks 01 and 03

MSL Cruise and Delta DOR

New Horizons Beacon, Cruise Telemetry in week 03





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – January (Weeks 01 - 04) (continued)

#### EVENTS

NExT Cruise 2a in weeks 01 and 02; DSM Nav in weeks 03 - 06

RFC Cat X/Ka in weeks 03 and 04; Clock Sync in weeks 01 and 03

SGP Crustal Dynamics H-M4 in week 02; B-M4 in week 03; W-M4 in week 04

SOHO Keyhole beginning in week 02

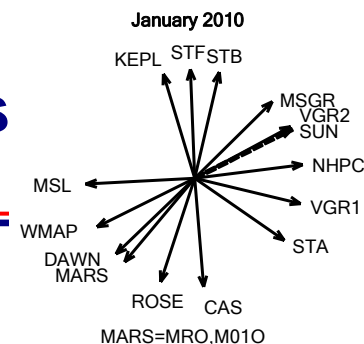
Stereo Ahead HGA CAL in week 02

Stereo Behind HGA CAL in week 02

Voyager 1 DTR Array in week 01; A074 U/L BU, D/L CONF BU in week 02

Voyager 2 SEQ A074 U/L and SEQ D/L CONF in week 02

WMAP Maneuver in week 01







# Resource Allocation Review Events, Recommendations and Analyses



2010 – January (Weeks 01 - 04) (continued)

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## RECOMMENDATIONS

☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.

☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.

Voyager 2 Routine U/L reduce supports from 8 hours to 6 hours.



# Resource Allocation Review Events, Recommendations and Analyses



2010 – January (Weeks 01 - 04) (continued)

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## ANALYSES

1. (70M) The projected unsupportable time is Moderate to Extreme for DSS Maintenance, CAS, M01O, MEX, MRO, STF and VGR1. elevated Mars requirements, compounded by the DSS-14 Downtime. Currently there are no MSPA activities requested.
2. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, NExT, SOHO, STF, VGR2 and Wind. Contention is heavy due to oversubscription of the subnet. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations.



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – February (Weeks 05 - 08)

#### **EVENTS**

DSS-14 approved downtime Life Extension and Depot Level Maintenance  
(NIB to Life Extension)

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

ATOT A01 Asteroid in week 05

Cassini Tour

Chandra Lunar Eclipse in week 06

Dawn Delta DOR in weeks 06 and 08, and Vesta Thrust

EPOXI Prime Shift and TCM end in week 05

EGS Global VLBI in week 06

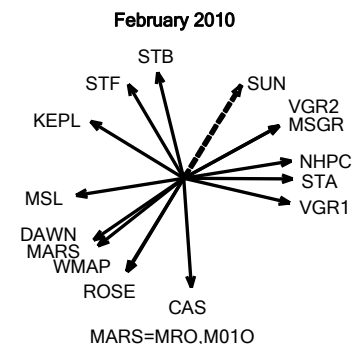
GBRA Guest Observation, Host Country

Kepler Monthly Science in week 07, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Reconnaissance Orbiter Delta DOR in week 08, and Relay and Science

Mars Express Occultation ends in week 06; Orbital Science begins week 07; Bi-Static  
Radar in weeks 05 and 08





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – February (Weeks 05 - 08) (continued)

#### EVENTS

**MSL Cruise and Delta DOR**

**Hayabusa Orbit Determination begins in week 05**

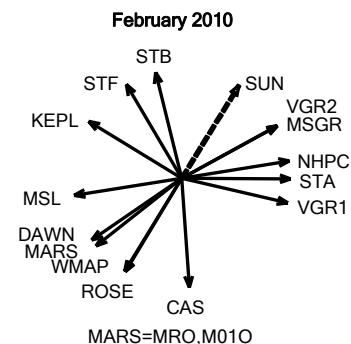
**New Horizons Beacon, Cruise Telemetry in week 07**

**NExT DSM Nav in weeks 05 and 06; DSM2 in week 06, Post Nav in weeks 07 – 11**

**RFC Cat S/X in week 05 and 06; Clock Sync in week 05 and 07**

**SGP Crustal Dynamics B-M4 in week 06; H-M4 in week 08**

**SOHO Keyhole ends in week 06**





# Resource Allocation Review Events, Recommendations and Analyses



2010 – February (Weeks 05 - 08) (continued)

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## RECOMMENDATIONS

- ☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.
- ☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.



# **Resource Allocation Review Events, Recommendations and Analyses**



**2010 – February (Weeks 05 - 08) (continued)**

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## **ANALYSES**

(70M) The projected unsupportable time is Moderate to Severe for DSS Maintenance, M01O, MEX and MRO. Due to elevated Mars requirements, compounded by the DSS-14 Downtime. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG1, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – March (Weeks 09 - 12)

#### **EVENTS**

DSS-14 approved downtime Life Extension and Depot Level Maintenance (NIB to Life Extension) ends in week 12

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra ACA D/C MESR in week 12

Dawn Delta DOR in weeks 10 and 12, and Vesta Thrust

GBRA Guest Observation in weeks 09 – 12, Host Country in weeks 10 – 12

Kepler Quarterly Roll Science in week 12, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Reconnaissance Orbiter Relay and Science

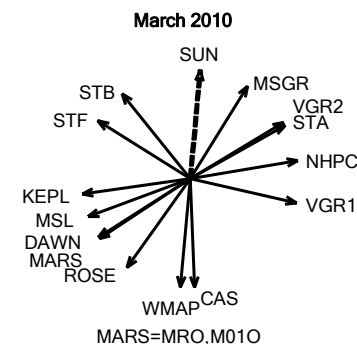
Mars Express Orbital Science, Bi-Static Radar in weeks 09 and 11

Messenger TCM in week 10

MSL Cruise and Delta DOR; FS C/O 2 in weeks 11 – 13

Hayabusa Orbit Determination

New Horizons Beacon, Cruise Telemetry in week 10 and 11





# Resource Allocation Review

## Events, Recommendations and Analyses

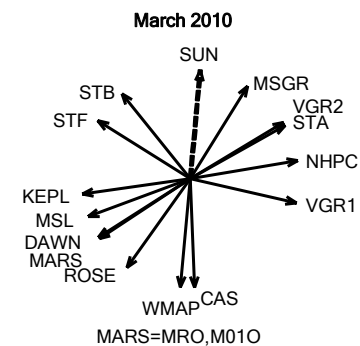
### 2010 – March (Weeks 09 - 12) (continued)

#### EVENTS

**NExT DSM Post Nav ends in week 11**

**RFC Cat X/Ka in weeks 09 and 10; S/X in weeks 11 and 12; Clock Sync in weeks 09 and 11**

**SGP Crustal Dynamics W-M4 in week 10; B-M4 in week 12**







# Resource Allocation Review Events, Recommendations and Analyses



2010 – March (Weeks 09 - 12) (continued)

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## RECOMMENDATIONS

- ☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.
- ☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.



# **Resource Allocation Review Events, Recommendations and Analyses**



**2010 – March (Weeks 09 - 12) (continued)**

---

## **ANALYSES**

(70M) The projected unsupportable time is Moderate to Severe for DSS Maintenance, M01O, MEX and MRO. Due to elevated Mars requirements, compounded by the DSS-14 Downtime. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG1, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – April (Weeks 13 - 17)

#### EVENTS

DSS-25 approved downtime Ka-Band Uplink Install and Depot Level Maintenance (NIB to Ka-Band Uplink Install) in weeks 13 – 15,  
DOY 088 – 108

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

ATOT A01 Image in week 17

Cassini Tour

Dawn Delta DOR in weeks 14 and 16, and Vesta Thrust

EPOXI Cruise, Approach and Prime Shift begins in week 17, Delta DOR in week 17

EGS EVN J-M5 in week 13

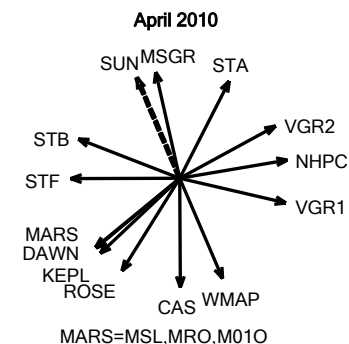
GBRA Guest Observation; Host Country in weeks 13, 14, 16, and 17; PRA-GAVRT in weeks 13 – 17

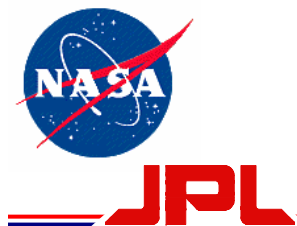
GSSR Mercury in week 17

Kepler Monthly Science in week 16, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Express Orbital Science, Bi-Static Radar in weeks 13, 15 and 17





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – April (Weeks 13 - 17) (continued)

#### EVENTS

Mars Reconnaissance Orbiter Relay and Science, X/Ka-Delta DOR in week 16

Messenger TCM in week 15

MSL Cruise and Delta DOR, FS C/O 2 in week 13, FSW Update in weeks 15 – 17

Hayabusa Orbit Determination

New Horizons Beacon, Cruise Telemetry in week 15

NExT Cruise 2b in weeks 13 and 17

RFC Cat X/Ka in weeks 15 and 16; S/X in week 17; Clock Sync in weeks 13, 15 and 17

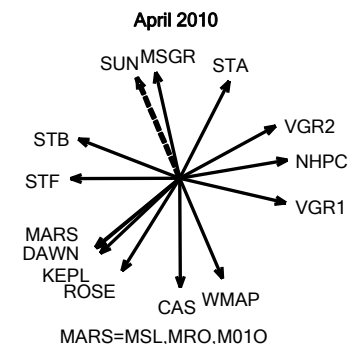
SGP Crustal Dynamics H-M4 in week 13; W-M4 in week 14; B-M4 in week 15; H-M4 in week 16

SOHO Keyhole in week 16

Stereo Ahead HGA CAL in week 14

Stereo Behind HGA CAL in week 14

WIND TCM in week 14





# Resource Allocation Review Events, Recommendations and Analyses



2010 – April (Weeks 13 - 17) (continued)

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## RECOMMENDATIONS

- ☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.
- ☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.



# **Resource Allocation Review Events, Recommendations and Analyses**



**2010 – April (Weeks 13 - 17) (continued)**

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## **ANALYSES**

(70M) The projected unsupportable time is Moderate to Severe for DSS Maintenance, M01O, MEX, MRO and STF. Due to elevated Mars requirements and high overlap during Mars viewperiod. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG1, 34BWG2 and 34HSB, subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – May (Weeks 18 – 21)

#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Earth Eclipse begins in week 18

Dawn Delta DOR in weeks 18 and 20, and Vesta Thrust

EPOXI Cruise, Approach and Prime Shift, Delta DOR in week 21

EGS Global VLBI in week 21

GBRA Guest Observation, Host Country in weeks 18 and 20: PRA-GAVRT

GSSR GODR in weeks 18 and 20: Mercury in week 21

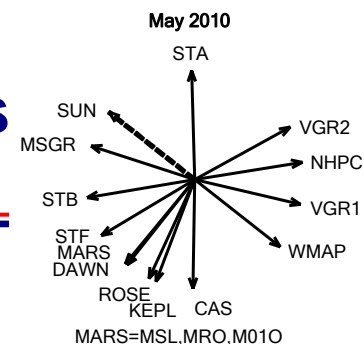
Kepler Monthly Science in week 21, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Express Orbital Science, Bi-Static Radar in weeks 19 and 21

Mars Reconnaissance Orbiter Relay and Science

MSL Cruise and Delta DOR, INST C/O 2 in weeks 18 and 19; TCM in weeks 19 and 20;  
Approach begins in week 21





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – May (Weeks 18 – 21) (continued)

#### EVENTS

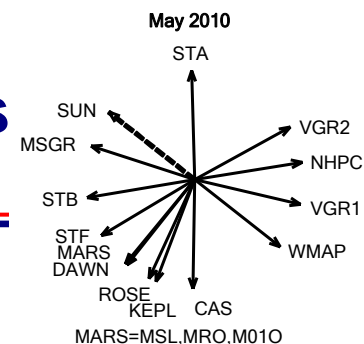
Hayabusa Delta DOR E/W, Delta DOR N/S and Orbit Determination

New Horizons Beacon, Cruise Telemetry in week 18

NExT Cruise 2b in weeks 21

RFC Cat S/X in week 18; X/Ka in week 21; Clock Sync in weeks 19 and 21

SGP Crustal Dynamics W-M4 in week 18; H-M4 in week 19; B-M4 in week 20; W-M4 in week 21







# Resource Allocation Review Events, Recommendations and Analyses



2010 – May (Weeks 18 - 21) (continued)

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## RECOMMENDATIONS

KEPL utilize Narrabri to supplement DSN coverage during continuous Quarterly Roll/Monthly Science supports due to MSL Approach phase requirements.

☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.

☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.



# Resource Allocation Review Events, Recommendations and Analyses



2010 – May (Weeks 18 - 21) (continued)

---

## ANALYSES

(70M) The projected unsupportable time is Moderate to Severe for DSS Maintenance, M01O, MEX, MRO and STF. Due to elevated Mars requirements. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34HSB, 34BWG1 and 34BWG2 subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – June (Weeks 22 - 25)

#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Earth Eclipse ends in week 24

Dawn Delta DOR in weeks 22 and 24, and Vesta Thrust

EPOXI Cruise, Approach and Prime Shift, Delta DOR in week 25

EGS Calibration and EVN J-M5 in week 22

GBRA Guest Observation, Host Country and PRA-GAVRT

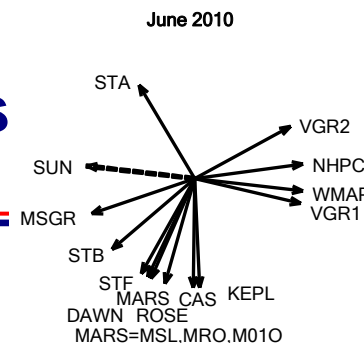
GSSR Asteroid 1999 MN in week 22; GODR in weeks 22 and 24; Mercury in week 22;  
Venus GBT in week 24

Kepler Quarterly Roll and Science in week 25, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Express Orbital Science, Bi-Static Radar in weeks 23 and 25

Mars Reconnaissance Orbiter Relay and Science, X/Ka-Delta DOR in week 24





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – June (Weeks 22 - 25) (continued)

#### EVENTS

**MSL Delta DOR and Approach**

**Hayabusa Orbit Determination ends in week 22, Re-entry and Re-entry Trim in week 23**

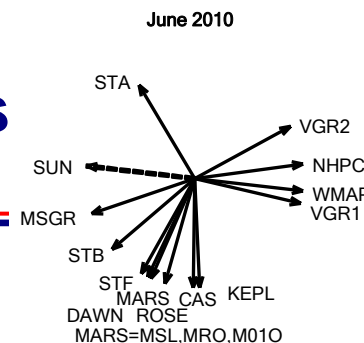
**New Horizons Cruise/Telemetry in week 22, Checkout begins in week 22, Delta DOR in weeks 24 and 25, Beacon**

**NExT Cruise 2b in week 25**

**RFC Cat S/X in week 23 and 24; X/Ka in week 22; Clock Sync in weeks 23 and 25**

**Rosetta Asteroid Lotetia Flyby begins in week 23**

**SGP Crustal Dynamics H-M4 in week 23; W-M4 in week 25**





# Resource Allocation Review Events, Recommendations and Analyses



2010 – June (Weeks 22 - 25) (continued)

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## RECOMMENDATIONS

KEPL utilize Narrabri to supplement DSN coverage during continuous Monthly Science supports due to MSL Approach phase requirements.

☺ M01O THEMIS MSPA 3 passes with 70M MRO Relay and Science passes.

☺ MRO MSPA 3 passes with M01O THEMIS 70M passes.



# **Resource Allocation Review Events, Recommendations and Analyses**

**2010 – June (Weeks 22 - 25) (continued)**

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## **ANALYSES**

(70M) The projected unsupportable time is Moderate to Severe for DSS Maintenance, GSSR Venus GBT, Hayabusa Re-Entry Trim, M01O, MEX, MRO and STF. Due to elevated Mars requirements. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG1, 34BWG2 , 34HSB subnets are workable and should resolve during final schedule preparations and negotiations

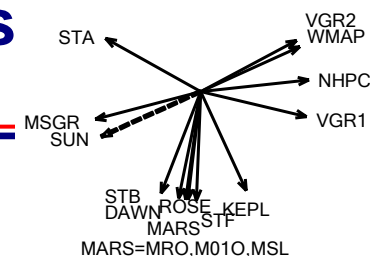


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – July (Weeks 26 - 30)

July 2010



#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-54 approved downtime (Ka-Band Phase 2 Install) beginning in week 28

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Lunar Eclipse in week 27; ACA D/C MESR in week 28

Dawn Delta DOR in weeks 26, 28 and 30; Forced Coast begins in weeks 28, and Vesta Thrust

EPOXI Cruise, Approach and Prime Shift, Delta DOR in week 29

GBRA Guest Observation, Host Country, PRA-GAVRT

GSSR GODR in weeks 26, 28 and 30

Kepler Monthly Science in week 30, and Science Ops

Mars Odyssey 2001 THEMIS

Mars Express Orbital Science, Bi-Static Radar in weeks 27 and 29

Mars Reconnaissance Orbiter Relay and Science

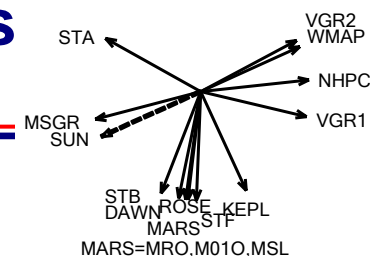


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – July (Weeks 26 - 30) (continued)

July 2010



#### EVENTS

**MSL Approach ends in week 27; Delta DOR in weeks 26 and 27; TCM in week 27; EDL in week 27 DOY 191; Surface Ops begins in week 27**

**New Horizons Checkout in weeks 26 – 27 and 29 – 30; L MET CCD CMD in weeks 26 and 30; Maneuver in week 27; Encounter Mode in weeks 27 and 28; Delta DOR in weeks 28 – 30**

**NExT Cruise 2b in weeks 29**

**RFC Cat S/X in weeks 29 and 30; X/Ka in weeks 27 and 28; Clock Sync in weeks 27 and 29**

**Rosetta Asteroid Lutetia Flyby in week 27 DOY 191, ends in week 29**

**SGP Crustal Dynamics B-M4 in weeks 26 and 30; H-M4 in week 28**

**Stereo Ahead HGA CAL in week 28**

**Stereo Behind HGA CAL in week 28**

**WIND TCM in week 27**





# Resource Allocation Review Events, Recommendations and Analyses



2010 – July (Weeks 26 - 30) (continued)

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## RECOMMENDATIONS

- ☺ CAS Tour move 70M requirements to 34M in week 27. (1)
- ☺ M010 THEMIS MSPA 3 70M passes with MRO. Maximize MSPA at 34M subnet with MRO and MEX. (1,2)
- ☺ MRO Relay and Science maximize 34M MSPA and accommodate MSL 34M requirements. (1,2)
- ☺ MEX Orbital Science maximize 34M MSPA and accommodate MSL 34M requirements. (1,2)

**MSL Approach Accommodate STF 70M requirements in weeks 26 and 27. (1)**

- ☺ NHPC Maneuver and Encounter Model supports in week 27 and 28 to weeks 25 and 26, due to MSL Approach and EDL. (1)



# Resource Allocation Review Events, Recommendations and Analyses

2010 – July (Weeks 26 - 30) (continued)

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for CAS, DSS Maintenance, MEX, MRO, M01O, MSL, NHPC and STF. Contention is due oversubscription of the subnet during MSL Approach, EDL and Surface Operations and M01O THEMIS and heavy viewperiod overlap during the Mars view. Currently there are no MSPA activities requested.
2. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, CAS, DSS Maintenance, INTG, KEPL, MRO, MSGR, MSL, SDU, STB, STF, VGR2 and WIND. Contention is due oversubscription of the subnet during MSL Approach, EDL and Surface Operations, NHPC Encounter Modeling and TCM and ROSE Asteroid Flyby. Heavy contention is due to high viewperiod overlap between high activity missions. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations

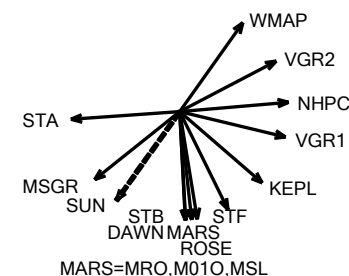


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – August (Weeks 31 - 34)

August 2010



#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-54 approved downtime (Ka-Band Phase 2 Install)

DSS-66 approved downtime (Extended Downtime)

DSS-25 proposed downtime Ka-Band Uplink Install and Depot Level Maintenance (NIB to Ka-Band Uplink Install) beginning in week 31 – 34, DOY 214 – 241

#### Cassini Tour

Dawn Delta DOR in weeks 32 and 34; Forced Coast ends in week 31, and Vesta Thrust

EPOXI Cruise and Approach ends in week 32; Delta DOR in week 33; TCM begins in week 32, and Prime Shift

GBRA ,Guest Observation; Host Country in weeks 32 – 34; PRA-GAVRT

GSSR GODR in weeks 32 and 34

Kepler Monthly Science in week 34, and Science Ops

Mars Odyssey 2001 THEMIS ends in week 31, and Mapping begins in week 32

Mars Express Orbital Science, Bi-Static Radar in weeks 31 and 33

Mars Reconnaissance Orbiter Relay and Science, X/Ka-Delta DOR in week 32



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – August (Weeks 31 - 34) (continued)

#### EVENTS

##### MSL Surface Ops

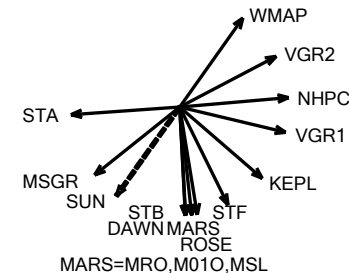
New Horizons Checkout in weeks 31 and 32; Beacon begins in week 32; ~~Cruise telemetry~~ in week 34

NExT Cruise 2b in week 33

RFC Cat X/Ka in weeks 33 and 34; Clock Sync in weeks 31 and 33

SGP Crustal Dynamics W-M4 in weeks 31 and 34; B-M4 in week 33

August 2010





# Resource Allocation Review Events, Recommendations and Analyses



2010 – August (Weeks 31 - 34) (continued)

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## RECOMMENDATIONS

- ☺ Approve proposed DSS-25 downtime for Ka Uplink installation.
- ☺ M010 THEMIS MSPA 3 70M passes with MRO in week 31. (1)
- ☺ MEX Orbital Science maximize 34M MSPA and accommodate MSL 34 Meter requirements. (2)
- ☺ MRO Relay and Science maximize 34M MSPA and accommodate MSL 34 Meter requirements. (2)



# **Resource Allocation Review Events, Recommendations and Analyses**



**2010 – August (Weeks 31 - 34) (continued)**

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## **ANALYSES**

1. (70M) The projected unsupportable time is moderate to extreme for DSS Maintenance, MEX, MRO, M01O, NHPC, STF and VGR2. Contention is due oversubscription of the subnet by GSSR Mercury and Venus GBT, M01O THEMIS and NHPC Checkout and heavy viewperiod overlap during the Mars view. Currently there are no MSPA activities requested.
2. (34BWG1) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, INTG, KEPL, MRO, MSGR Cruise, MSL Surface Ops, STA, STB, STF, VGR2 and Wind. Contention is due oversubscription of the subnet during MSL Surface Operations and MRO Science and Relay. Heavy contention is due to high viewperiod overlap between most missions. Currently there are no MSPA activities requested.

Contention levels on the 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – September (Weeks 35 - 39)

#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-54 approved downtime (Ka-Band Phase 2 Install) ends in week 38,  
DOY 269

DSS-66 approved downtime (Extended Downtime)

ATOT A01 Asteroid in week 36

Cassini Tour

Dawn Delta DOR in weeks 36 and 38, and Vesta Thrust and TCM

EPOXI Delta DOR in week 35 and 37, and Prime Shift

GBRA Guest Observation; Host Country in weeks 36 – 38; PRA-GAVRT

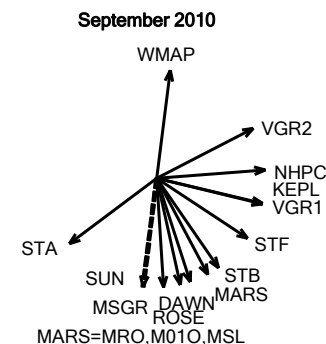
GSSR GODR in weeks 32 and 34

Kepler Quarterly Roll and Science in week 38, and Science Ops

Mars Odyssey 2001 Mapping

Mars Express Orbital Science, Bi-Static Radar in weeks 35, 37 and 39

Mars Reconnaissance Orbiter Relay and Science





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – September (Weeks 35 - 39) (continued)

#### EVENTS

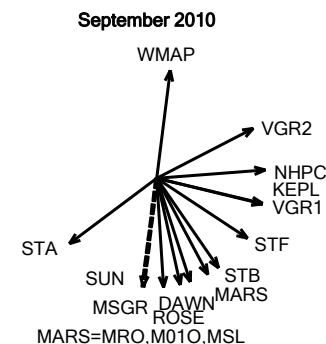
MSL Surface Ops

New Horizons Beacon, Cruise Telemetry in week 37

NExT DSM OD begins in week 36

RFC Cat S/X in weeks 35 and 36; X/Ka in week 39; Clock Sync in week 35, 37 and 39

SGP Crustal Dynamics H-M4 in weeks 35 and 39; B-M4 in week 36; W-M4 in week 37







# Resource Allocation Review Events, Recommendations and Analyses



2010 – September (Weeks 35 - 39) (continued)

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## RECOMMENDATIONS

- ☺ MEX Orbital Science maximize 34 Meter MSPA and accommodate MSL 34 Meter requirements.
- ☺ MRO Relay and Science maximize 34 Meter MSPA and accommodate MSL 34 Meter requirements.



# **Resource Allocation Review Events, Recommendations and Analyses**



**2010 – September (Weeks 35 - 39) (continued)**

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## **ANALYSES**

**(34BWG1) The projected unsupportable time is moderate to extreme for ACE, DSS Maintenance, INTG, KEPL, MRO, MSGR Cruise, MSL Surface Ops, STA, STB, STF, VGR2 and Wind. Contention is due oversubscription of the subnet during MSL Surface Operations. Heavy contention is due to high viewperiod overlap between most missions compounded by the DSS-54 downtime. Currently there are no MSPA activities requested.**

**Contention levels on the 70M, 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations**

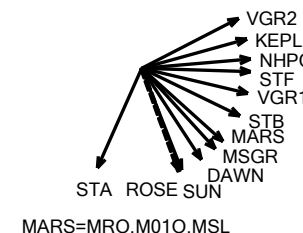


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – October (Weeks 40 - 43)

October 2010



#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra ACA D/C MESR in week 41

Dawn Delta DOR in weeks 40 and 42, and Vesta Thrust

EPOXI TCM in weeks 39 and 40; Delta DOR in weeks 41 and 42; Encounter in weeks 40 – 42; Playback in weeks 42 and 43, Decommissioning begins in week 43, and Prime Shift

GBRA Guest Observation, Host Country, PRA-GAVRT

GSSR Asteroid 1998 UO1 in week 39; Asteroid 2003 UV11 begins in week 43

Kepler Monthly Science in week 43, and Science Ops

Mars Odyssey 2001 Mapping

Mars Express Orbital Science, Bi-Static Radar in weeks 41 and 43

Mars Reconnaissance Orbiter Relay and Science; X/Ka-Delta DOR in week 40

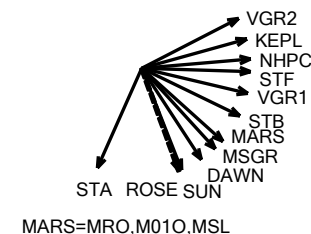
MSL Surface Ops



## **EVENTS**

# **Resource Allocation Review Events, Recommendations and Analyses 2010 – October (Weeks 40 - 43) (continued)**

October 2010



**New Horizons Beacon in weeks 41 – 43; Maneuver in weeks 40 and 41;  
Cruise Telemetry in week 42**

**NExT DSM Arrival in week 41; DSM OD ends in week 41; DSM Post Nav begins in week 42**

**RFC Cat S/X in weeks 41 and 42; X/Ka in week 40; Clock Sync in weeks 41 and 43**

**SGP Crustal Dynamics B-M4 in week 42; W-M4 in week 43**

**Stereo Ahead HGA CAL in week 40**

**Stereo Behind HGA CAL in week 40**

**WIND TCM in week 40**



# Resource Allocation Review Events, Recommendations and Analyses



2010 – October (Weeks 40 - 43) (continued)

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## RECOMMENDATIONS

- ☺ MEX Orbital Science maximize 34M MSPA.
- ☺ MRO Relay and Science maximize 34M MSPA.



# Resource Allocation Review Events, Recommendations and Analyses



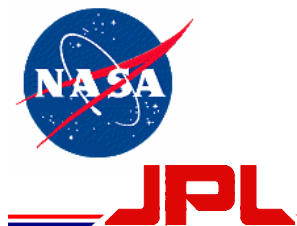
2010 – October (Weeks 40 - 43) (continued)

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## ANALYSES

(34BWG1) The projected unsupportable time is moderate to extreme for ACE, CAS Tour, DIF, DSS Maintenance, KEPL, MRO, MSGR Cruise, MSL, SDU, STA, STB, STF, VGR2 and WIND. Contention is due oversubscription of the subnet during the Mars view. Currently there are no MSPA activities requested.

Contention levels on the 70M, 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations

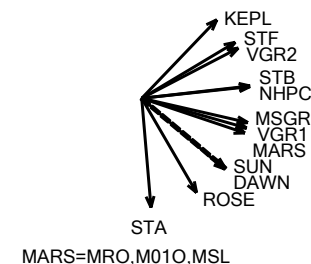


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – November (Weeks 44 - 47)

November 2010



#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

Cassini Tour

Chandra Earth Eclipse in weeks 44, 45 and 47, Leonid Pass in weeks 45 and 46

Dawn Delta DOR in weeks 44 and 46; Forced Coast in weeks 45 and 46, and Vesta Thrust

EPOXI Decommissioning and Prime Shift ends in week 45

EGS Global VLBI in week 45; Calibration in week 46; EVN J-M5 in week 46

GBRA Guest Observation; Host Country; PRA-GAVRT

GSSR Asteroid 2002 VE68 in weeks 44 and 45; Asteroid 2003 UV11 ends in week 44

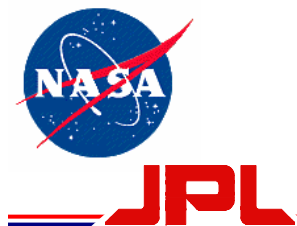
Kepler Monthly Science in week 47, and Science Ops

Mars Odyssey 2001 Mapping

Mars Express Orbital Science, Bi-Static Radar in weeks 45 and 47

Mars Reconnaissance Orbiter Relay and Science

Messenger TCM in week 45

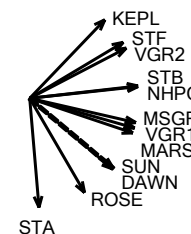


# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – November (Weeks 44 - 47) (continued)

November 2010



#### EVENTS

##### MSL Surface Ops

New Horizons Beacon in weeks 45 – 47; Maneuver in weeks 44 and 45; Cruise Telemetry in week 46

NExT Cruise 2b in week 45; DSM Post Nav ends in week 44

RFC Cat S/X in week 47; X/Ka in weeks 45 and 46; Clock Sync in week 45 and 47

Rosetta DSM-2 begins in week 45

SGP Crustal Dynamics H-M4 in week 44; W-M4 in week 46; B-M4 in week 47





# Resource Allocation Review Events, Recommendations and Analyses



2010 – November (Weeks 44 - 47) (continued)

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## RECOMMENDATIONS

- ☺ MEX Orbital Science maximize 34M MSPA.
- ☺ MRO Relay and Science maximize 34M MSPA.



# Resource Allocation Review Events, Recommendations and Analyses



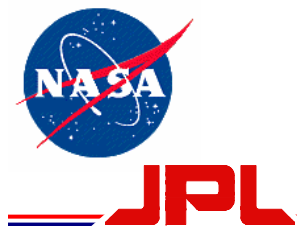
**2010 – November (Weeks 44 - 47) (continued)**

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## **ANALYSES**

(34BWG1) The projected unsupportable time is Moderate to Severe for ACE, CAS Tour, DIF, DSS Maintenance, KEPL, MRO, MSGR Cruise, MSL, SDU, STA, STB, STF, VGR2 and WIND. Contention is due oversubscription of the subnet during the Mars view. Currently there are no MSPA activities requested.

Contention levels on the 70M, 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – December (Weeks 48 - 52)

#### EVENTS

DSS-46 approved downtime (Extended Downtime)

DSS-66 approved downtime (Extended Downtime)

ATOT A01 Image in week 51

Cassini Tour

Chandra Earth Eclipse ends in week 48

Dawn Delta DOR in weeks 48, 50 and 52, and Vesta Thrust

GBRA Guest Observation; Host Country ends in week 48; PRA-GAVRT

Kepler Quarterly Roll and Science in week 51, and Science Ops

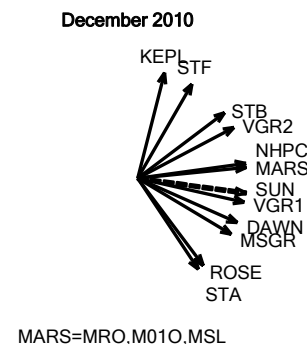
Mars Odyssey 2001 Mapping

Mars Express Orbital Science, Bi-Static Radar in weeks 49 and 51

Mars Reconnaissance Orbiter Relay and Science, X/Ka-Delta DOR in week 48

MSL Surface Ops

New Horizons Beacon in weeks 48 and 50 – 52; Maneuver in weeks 48 and 49; Cruise Telemetry in week 51; Solar Conjunction in week 52





# Resource Allocation Review

## Events, Recommendations and Analyses

### 2010 – December (Weeks 48 - 52) (continued)

#### EVENTS

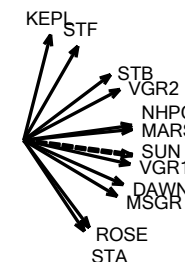
NExT Cruise 2c in week 49; Tempel T-1 Nav in weeks 51 and 52

RFC Cat S/X in week 48; X/Ka in weeks 51 and 52; Clock Sync in weeks 49 and 51

Rosetta DSM-2

SGP Crustal Dynamics H-M4 in weeks 48 and 50; W-M4 in week 51; B-M4 in week 51

December 2010



MARS=MRO,M010,MSL



# Resource Allocation Review Events, Recommendations and Analyses



2010 – December (Weeks 48 - 52) (continued)

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## RECOMMENDATIONS

- ☺ MEX Orbital Science maximize 34M MSPA.
- ☺ MRO Relay and Science maximize 34M MSPA.



# Resource Allocation Review Events, Recommendations and Analyses



**2010 – December (Weeks 48 - 52) (continued)**

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## **ANALYSES**

(34BWG1) The projected unsupportable time is Moderate to Severe for ACE, CAS Tour, DIF, DSS Maintenance, KEPL, MRO, MSGR Cruise, MSL, SDU, STA, STB, STF, VGR2 and WIND. Contention is due oversubscription of the subnet during the Mars view. Currently there are no MSPA activities requested.

Contention levels on the 70M, 34HEF, 34BWG2 and 34HSB subnets are workable and should resolve during final schedule preparations and negotiations



# Resource Allocation Review Supplemental Materials



**Supplemental materials may be found on the  
Resource Allocation Planning Service (RAPS) Homepage at:  
<http://rapweb.jpl.nasa.gov>**

- ◆ **Ongoing Users Negotiated Requirements  
Individual User Loading Profiles**
- ◆ **Resource Allocation Review Information  
Supplemental Yearly Information**